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1. Editorial

Kenneth Ives

English Standards Project

In March, the U. S. Department of Education discontinued funding for this project, at its midpoint, just as the second round of drafts was being reviewed for distribution.

The tentative standards being circulated seemed primarily for opportunities rather than for content, and open to qualitative rather than quantitative assessment. This would make complicated and imprecise any over all comparisons between schools, and the setting of specific minimum levels of competence. Probably both types of standards are needed, but production of only one type may have cost the Center for Reading the renewal of its contract.

International Reading Association and National Council of Teachers of English are discussing with the Department of Education how to redirect and continue the project.

An Invisible Elephant?

Are the irregularities of English spelling, and the advantages of spelling reform, so large and pervasive that most people cannot see them?

A recent analysis of the 400 most frequently occurring words indicates that about half would need to be changed to conform to phonic rules. Thus, until spelling is reformed, both phonic and whole word approaches are needed, and will have their partisans and detractors. Thus the "Great Debate" between these two approaches will likely continue inconclusively.

With the use of received, "correct" spellings being a mark of an educated, middle class person, there are strong psychological and cultural pressures to accept and use them, in order to be accepted in educated society. These pressures produce perceptual barriers to facing the inconsistencies. Hence the possibility of changing them is emotionally and culturally difficult for many people to consider.

How can that obstacle be reduced?

Increasing Visibility

Noah Webster used the nationalist enthusiasm following the American War of Independence to introduce some spelling reforms. Those that became accepted still distinguish American from British spellings. From 1898 to 1916, the National Education Association, the Simplified Spelling Board, and President Theodore Roosevelt built on the optimism and activism of the Progressive Era to introduce some other changes, a few of which continue. The short form of **program** is the most widely accepted.

In the past year in the United States there have been several developments.

American Literacy Council has added sound to its **SoundSpeler** program, to model pronounciation for its learners.

Better Education thru Simplified Spellinghas produced a 23 minute Video tape on spelling reform**,** and shown it to the Program Committee of the Michigan Elementary and Middle School Principals Association. BETSS has also met with the Acting Dean of the College of Education of Wayne State University in Detroit.

Representatives of the three spelling reform organizations - American Literacy Council, Better Education thru Simplified Spelling, and Simplified Spelling Society - met in Chicago to share views and experiences, and see a demonstration of the **SoundSpeler** program. As the "Spelling Reform Coalition" they have been accepted as a "response group" to the English Standards Project. If that project resumes, they will likely be reactivated to respond to its proposed standards.

The five standards proposed in this column in the last issue were included in a letter published in **Reading Today,** the publication of the International Reading Association which goes to its 94,000 members.

An interest group on **Phonics and Regularized Readings** will be proposed at the International Reading Association convention in Toronto this May.

The first stage in marketing a product is getting an awareness of it to at least a substantial minority of potential users. In what other ways can we get the basic issues of spelling irregularities, and the benefits of reform, widely discussed?

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2. Recent Spelling for Research: Some Implications for Spelling Reform

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Reports of the findings of experimental research, and the commentary relative to these empirical investigations, made over the past five years, suggest that there are some special considerations that advocates of spelling reform should make as they deliberate about further orthographic revision and improvement.

Is spelling reform needed?

In response to this question Krashen (1993) reviewed the studies made over the years of the number of spelling errors found in students' essays, from the elementary grades thru to the university level. It is his judgment that these data indicate that "people spell quite well" (p. 9). The typical university freshman essay has less than 2 percent spelling errors. Essays by students in the intermediate elementary grades are found to contain on the average only 6 percent. Clarke (1988) discovered that even first-graders have this supposedly high level of competence in spelling.

Before jumping to the conclusion that everyone today spells so accurately that efforts at spelling reform have become superfluous, we need to contrast the number of spelling errors students make with words *they choose to spell* (Krashen, 1993) with test results of their abilities to spell a set of the most frequently used words. To this effect, I calculated from the data presented in the *New Iowa Spelling Scale* (Greene, 1954) that only 34 percent of fourth graders on the average could spell correctly the 5507 most common words. This figure improves to 62 percent for sixth-grade children.

The differences between the findings of the studies Krashen (1993) surveyed, and those of the NISS, likely lie in the probability that writers may avoid trying to write words they cannot spell, especially in experimental test situations, such as those reported on by Krashen. Thus, basing conclusions about people's spelling abilities on the errors found in their essays may skew badly the facts in this regard. Kelly (1992, p. 638) guesses "that at least 15% to 20% of our population can't spell." His speculation in this regard therefore actually may be more realistic than the experimental studies Krashen (1993) cites, for the above reason. A further handicap to using students' essays to divine how well they can spell are the spelling check devices built into modern word processors that correct the spelling mistakes made by writers. Little wonder, then that the spelling in essays written by university students is almost error-free (Krashen, 1993).

The Invented Spelling Factor

The question as to what happens when young children attempt to "invent" the spellings of words, being left to their own devices to do so, that is, when not being given any formal instruction, continues to interest researchers. It is found repeatedly of late that beginning spellers encouraged simply to invent spellings, rather than respond to instruction given them, go thru distinct stages of spelling "development."

First, these children represent spoken words with seemingly random strings of letters. A single letter often will be used to spell a word. Invented spellers will substitute sounds in words as they attempt to spell them, ones that are similar in phonemic features, altho the resultant spelling bears no resemblance to conventional spelling. In this regard, users of invented spelling rely heavily upon matching sounds with the names of letters, i.e., on sounds that "say their own names." Hence, ***day*** is spelled **da,** and ***buy*** is transcribed as ***bi.*** Since "short' vowels are more difficult for invented

spellers to write, they often will choose a letter whose name is closed to the sound of the vowel in the word they wish to spell. A typical result here is **bet** spelled as bat**.** Letter names thus can replace speech sounds. The sizes of multisyllable words will be reduced by deletions of phonologically weak syllables (Hoffman & Norris, 1989). Young spellers also demonstrate more errors in spelling unstressed syllables than in stressed ones (Treiman, Berch & Weatherson, 1993).

Over time, invented spellers will correctly represent in their writings the predictable spellings of the beginning, endings, and middle phonemes of words - in that order (Schafer, 1988). These latter spellings in many respects are similar to the reformed orthography designed by linguistic scholars. Thus, much of invented spelling is observed to be "phonologically recognizable" (Goswami, 1992, p. 968).

It is held, further, that thru their invented spellings young children demonstrate some perception and representation of extra sounds in words, ones that adults do not hear. These beginning spellers apparently perceive different sounds in words from those heard by adults (Goswami, 1992).

The general conclusion drawn from research on invented spelling is that spelling for beginning writers is much more a phonological than a visual process. The fact that they make many more errors with relatively unpredictable spelled words, than with highly predictable ones, helps confirm this conclusion. The remarkable finding that some 6-7- year-olds actually can correctly spell some words that they could not previously read (Goswami, 1992) reinforces the judgment that untutored beginning spellers depend more on phonological than visual cues to write words.

It is noticeable, however, that invented spellers move, over time, from a predominant dependence upon the phonology of words to their visual aspects, such as familiar spelling patterns, morphological units, and inflected forms, once they have attained some reading skill (Bailet, 1992). Such activities as sorting written words to find similar visual features then is used to develop children's spelling (Bloodworth, 1991). Reading words makes its influence on spelling. By grade five exposure to correctly spelled words positively affects students' spelling accuracy. Exposure to misspelled ones now does not (Bradley & King, 1992).

Implications for Instruction

From the above findings about invented spelling a giant leap in judgment often is made by those who comment on this phenomenon. These writers on invented spelling jump to the conclusion that since school beginners can "invent" the spellings of words, they therefore require little if any formal instruction to progress satisfactorily to the mastery of conventional spelling. To this point, Wilde (1990, p. 282) contends that learning to spell should "be as natural, unconscious, effortless, and pleasant as learning to speak." Thus, it is said, "immersing children in words" is sufficient spelling instruction "for many students" (Templeton, 1992, p. 459). Norris (1989, p. 98) agrees that the acquisition of spelling should be "a natural language process." Spelling skill, according to these thoughts on it, emerges creatively as children experiment with invented spelling. Bean and Bouffler (1988) join in maintaining that children best learn to spell merely by writing often. Teachers are warned that direct and systematic spelling instruction actually will inhibit the development of this skill (Hoffman, 1990).

What the Empirical Evidence Says

Curious as to the bases for such opinions about the instruction of spelling, I reviewed the literature about invented spelling up to 1986 (Groff, 1986) to determine if there was experimental evidence as to whether or not students who invented spelling without any formal instruction later were found to be more accurate conventional spellers than were students who had received direct, systematic, and intensive instruction in spelling. I could find no experimental evidence that invented spelling had this effect. The relevant empirical evidence actually was to the contrary. That is, direct and

systematic spelling programs always were found to be more productive of conventional spelling ability than otherwise is possible.

In my survey for the present discussion I did find one study of late that gives the appearance, at least, of casting some doubt on my 1986 findings. Clarke (1988) found that first-graders who were encouraged to invent spellings scored significantly higher on a standardized spelling test than did children given "traditional spelling instruction." Unfortunately, the faulty design of this study precludes its use as a precise evaluation of the relative effect of untutored children's invented spellings on their development of conventional spelling. Both the experimental (invented spelling) and control groups in Clarke's study received direct and systematic instruction in phonics information, i.e., were given traditional spelling instruction. As noted, however, the *sine qua non* of authentic invented spelling programs is the abandonment of such phonics instruction.

Those who believe that invented spelling by itself is sufficient for developing conventional spelling skills also are contradicted by the mounting sum of experimental evidence that indicates direct, systematic, and intensive development of beginning spellers' conscious awareness of phonemes in spoken words and other phonics information significantly improves their acquisition of conventional spelling (see, for example, Ball & Blachman, 1991; Ehri, 1989; Goswami, 1992; Griffith, 1991; Foorman, Francis, Novy & Liberman, 1991; Recht, Caldwell & Newby, 1990; Schlagal, 1992; Tangel & Blachman, 1992; Worthy & Invernizi, 1990). Burns and Richgels (1989) found in fact that even 4-year-old children who could invent spellings of words were superior at the segmentation of the phonemes of spoken words to children this age who could not invent spellings. It therefore seems reasonable to conclude, as does Ehri (1989, p. 364), that "inadequate instruction is the real culprit" in spelling disability, and not that poor spellers had not been allowed to progress thru the stages of "developmental", spelling where no formal instruction is given.

An Ally for Spelling Reform?

Invented spelling, as described above, has been taken as one of its main practices by the so-called "Whole Language" (WL) approach to literacy development that now is widely adopted by government schools in all the English-speaking nations. The leaders of the WL movement insist that becoming literate is the same process as learning to speak. The rightly note that learning to talk requires no *formal* instruction. From this, they therefore conclude that little if any such teaching is needed to develop spelling skills (Templeton, 1992). As has been demonstrated above, however, this WL assumption finds no convincing support in the experimental research on spelling.

Advocates of spelling reform traditionally have favored the direct and systematic teaching of their simplified alphabets, and the relationships of phonemes to these letters. They thus have reflected what the empirical evidence indicates is true about this matter.

This positive attitude toward formal teaching of spelling appears to be a stumbling block toward an affiliation of spelling reform with WL, however. It would advance the pace of simplified spelling immensely, of course, in the short term at least, if the highly popular WL movement were to endorse and promote simplified orthography. AU that is necessary at this point, it appears, is to convince the leaders of WL and other WL advocates about the rationale of simplified spelling.

A major question on this issue, over the longer term, will remain whether WL will be able to maintain its opposition to the formal teaching of spelling in the face of an ever-increasing flow of experimental data that indicate direct and systematic teaching of phonemic awareness, phonics information, and aspects of written word structure is the superior route to successful conventional spelling. The up-to-date literature on spelling offers no help with the resolution of this conundrum.

In this regard, Rastall (1993, p. 35) assumes that "whole language principles therefore seem to imply that a phonetic spelling scheme [linked to a reformed alphabet] should be introduced in the initial stages of learning," wherein teachers direct children to learn "a preferred spelling for each

sound." As noted, the leaders of WL deplore such a presumption.

The rejection by WL of Rastall Beardsley's assumption of the easy coupling of WL with spelling reform is expressed by one of the leaders of the invented spelling cum WL movement. In his objection to reformed spelling, Templeton (1992, p.458) asks, "How can a [spelling] system that attempts to represent sound and meaning accommodate both without confusing the learner?" Reformed spelling cannot, he contends. While Templeton concedes that advocates of spelling reform are "unselfishly motivated by a desire to make the [spelling] system easier to learn," they are wrong to assume that direct and systematic teaching is the best way to accomplish this purpose (p. 458). Only unassisted invented spelling can develop students' knowledge about both phonetic and semantic aspects of spelling "without undue confusion between the two levels," he insists (p. 458). Most advocates of simplified spelling doubtless would protest, however, that orthographic reform does not inevitably lead to rejection of the semantic aspects of spelling. Templeton also seems to forget that invented spelling is based fundamentally on phonological aspects of spelling, not its semantic elements. Only as students approach the conventional spelling level of their spelling development does the latter exert its influence (Schlagal, 1992).

While Templeton (1992) complains that spelling reform puts too much emphasis on the phonetic aspect of spelling, Goswami (1992, p. 967) negatively criticizes it for supposedly promoting the idea that students "need to memorize the letters in each word in order to spell accurately." In Goswami's view, advocates of simplified spelling unduly emphasize "visual memorization" at the expense of phonological cues to spelling. We obviously cannot be guilty of both charges, spelling reformers likely would respond. As a matter of fact, they are guilty, of neither one, at least only rarely.

Conclusions

One major implication of recent research on spelling and its related commentary is that spelling reformers should make efforts to learn more about, and to take into regard in their deliberations, the findings about "invented spelling." If for no other reason than that present-day educators are so enamored with this process, spelling reformers should display whenever possible their enlightened, up-to- date awareness of this phenomenon. Moreover, there appears to a potential if not natural alliance between simplified and invented spelling that could be exploited for the furtherance of the former under the proper circumstances. In any event, spelling reformers can no longer avoid participating in the "great debate" about formal versus incidental teaching of spelling that has grown up around invented spelling.

Beyond these matters, experimental evidence on spelling of late suggests that the advocates of spelling reform expand their ruminations about the optimum orthography to include the evidence that certain phonemes and phoneme clusters are more difficult to spell than are others (Worthy & Invernizi, 1990). Suggested changes in the traditional alphabet thus might consider evidence of the relative difficulty beginning spellers experience in spelling various phonemes. The problem of gender equality in spelling also might be so addressed. It still is found that girl students in elementary schools spell significantly better than do boys, at all grade levels (Allred, 1990). How can spelling reform accommodate the relatively greater problems boys have in learning to spell?

Finally, it is not surprising to currently find that unfair or unreasonable negative criticisms from educators continue to be made about spelling reform. It is important, therefore, that on all available occasions proponents of spelling reform engage in dialog with teachers and school officials about simplified spelling in educational journals, meetings, and conventions. It seems particularly urgent that the air be cleared about spelling reform's stand on the semantic correlates of spelling performance.

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3. Experiments in public response to surplus-cut spellings in texts

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This paper describes briefly three sets of experiments in which adults read text with letter deletions in words, plus a further experiment rating similar words from a list.

Series 1. Comparisons of spelling for reading and spelling for writing - the same text used for different tasks with different subjects.

Experiment 1.1 Readers' awareness of surplus-cut letter deletions in text
Experiment 1.2 Readers' awareness of non-SC letter deletions in text
Experiment 1.3 Judgements of superfluous letters in words in text
Experiment 2. Readers'. objections to spelling changes in text

Series 2. The effects of practice in reading surplus-cut spelling in text on spelling preferences and perception of 'superfluous' letters in spelling.

Experiment 3.1 Preferences for spelling mode in reading
Experiment 3.2 Detection of surplus spellings by readers
Experiment 3.3 Spelling preferences of writers
Experiment 3.4 Spelling preferences of writers following reading practice in surplus-cut spelling.
Experiment 4. Ratings of acceptability of listed surplus-cut spellings

Aims of the experiments

The improvement of English spelling may be brought in thru official agency and education in schools, but the route to public acceptance must be thru increasing public familiarity with improved spellings and the principls behind them, in everyday life - the ej of the wej, so to speak.

It seems to me that this should begin in an experimental way before official moves, as part of the current trends of the 'living language'. Once the taste of spelling change becomes palatable the following changes may be easy and indeed welcome.

When the public can join in experimental reserch, this can help to ensure that reforms do indeed meet the needs of all categories of users and lerners, and amendments can be made as necessary, while there is time. And when people are themselvs involvd in experiments this makes a valuabl learning experience about the possibilities and the personal advantage of changes.

The series of experiments presented here investigates adult responses and preferences for various types of surplus-letter deletion in words, as a way to reduce the present clutter in English spelling. The concept of 'surplus' is that many letters in the spelling of English words serv no purpose in representation of meaning or pronunciation. Deletion of such surplus letters may be an essential step, and possibly the first step in reform. (See Yule, 1982, 1986, 1991, Upward & colleagues, 1992.)

These exploratory experiments observe the types of letter deletions that subjects do and do not notice in reading, and their preferences about them. The less that readers notice spelling modifications in text, since they 'fit their system', and the mor that these are changes that subjects themselves would like to make, the mor easily those changes can be implemented, and the mor helpful they may turn out to be.

Changes that are found to be intrusiv and disliked may require some rethinking of the principles that justify them, or judicious delay to avoid spoiling the good public relations produced by changes that are popular. As welcomed improvements are taken up informally as acceptable alternativ spellings and prove their value, appetite for full cleaning up of English spelling will increase rapidly. But first the gate must be opened.

Experiments in readers' and writers' responses to changing spelling can also contribute to basic understanding of the principls of spelling that they may be using, whether fonemic, morfofonemic, grammatical visual and orthografic - or unprincipled rote-memory. The experiments can also have practical consequences by improving participants' understanding of the underlying English spelling system.

These experiments are selected from a range of studies undertaken over some years in both Australia and the U.K as opportunity permitted. This strategy has been preferrd rather than one grand design, as so many factors are involvd in questions of attitudes and preferences in spelling. The volunteer subjects wer all adult citizens plus a few undergraduats and a group of 15-year-olds included in Experimental Series 3. Each brief report is selected to illustrate different aspects. To prevent tedious back-tracking for readers, comments are made during the course of presentation of each experiment, to be summd up and compared in the final discussion.

Series I. Comparisons of spelling for reading and spelling for writing
Materials. A seven-paragraf 900-word Sufi story about an intrepid girl was used as the text for three related experiments with different subjects and tasks. The first paragraf of approximatly 150 words provided a model. The last six paragrafs, of similar length, containd 308 word types, of which approximatly a third (104 types - around 11% of the total word-tokens in the text) containd letters that might be deleted on principls of extended 'Surplus-cut' spelling (SC, Yule 1991) then under the designation of Clipd spelling, similar but not identical to 'Cut Spelling' (CS, Upward, 1992), which has also been tested in some other experiments, e.g. Yule & Greentree (1986). The principles of extended SC include deletion of silent letters, doubld letters, and representations of vowels in unstressd syllabls (shwa vowels) that serv no purpose of representation of meaning or pronunciation.

Experiment 1.1 Readers' awareness of Surplus-cut letter deletions in words
Aim. The aim was to observ the types of surplus-letter deletions that wer noticed or overlookd during reading directed to meaning. The assumptions wer that readers will be mor likely to notice letter deletions if the deleted letters are of use to them in reading, and that they will be mor likely to overlook deletions of letters that they do not need.

Materials. Letters that appeared to be surplus to readers' requirements wer deleted from 79 words in the last six paragrafs of the story. This limited extent of deletions was made on analogy with cloze principls of the proportion of omissions that need not impede reading for meaning. It was thought that reading for meaning might be impeded if the text wer crammd with deletions, and instructions wer to mark all those that wer noticed. Deletions wer also not so many as to change a readers' set from expectation of standard spelling.

Subjects and Procedure. Naive adult subjects (N=33) from a citizens' volunteer subject panel completed the task as an untimed filler in a memory experiment. They wer askd to read the story so that they would be able to answer questions about it afterwards, and while they wer reading thru the text, to slash any spelling mistakes that they noticed.

Results. A short multipl-choice comprehension test showed that subjects did fulfil the requirement

of reading for meaning.
Subjects overlookd an average 11.3% of the deleted letters, with a range of 1-50 oversights and median of 8.5. Six re-spellings wer overlookd by 52-77% of subjects, suggesting that these deletions wer not particularly noticeabl: - ASKD, COLLECTD, EXPECTD, SEEMD, WOUD, COUD - that is, silent <e> within participls or between final <dt>, and silent <1> in the WOULD/COULD/SHOULD spelling pattern.

Ten re-spellings wer noticed by all subjects, indicating that these spelling changes stood out: FORIN, TRUBLS, SETL, SHOR, SEA-SHOR, WEL, HUMBL, HEVY, REVELED, RACKD, and a further seven wer noticed by all except one: BEFOR, COLAPSD, HAV, REDY, SEL, THRU, ULTIMAT - that is, words with mor than one letter deleted, novel three-letter consonant strings, final silent letters in mono- and disyllabls, reduction of a vowel digraf, and one infrequent word, ULTIMAT, which can be popularly pronounced with a final long vowel.

Experiment 1.2 Readers' recognition of non-SC letter deletions in words
A control experiment tested readers' responses to 79 words with letter-deletions selected to make minimum change in their basic visual configuration. It was possibl to make such deletions from 20 words that wer also used for SC deletions in Experiment 1.1. In a similar 'filler' setting, 34 adult volunteer subjects wer given the same instructions as in Experiment 1.1.

Results. Subjects overlookd an average of 13.5% of misspellings, with a range of 0 to 34 oversights.

Five deletions wer overlookd by 52 to 68% of subjects, suggesting that these wer not particularly noticeably in CHILDEN, COST (coast), INTERPETER, PREDICTON, SUCESSIVE.

Fonology could be a factor, since the deletions minimally affect pronunciation in informal speech, except PREDICTON, where the omitted <i> is not visually distinctiv within that letter cluster.

All subjects noticed 13 misspelled words, indicating that the deletions in them stood out - HAPPNESS, BOUGT, ESSENTAL, HAPY, LEST (least), LIF, ROP, SPOK, SYMPATY, UNPLASANT, WAK (walk), ALON, GRATFUL.

17 words wer noticed by all subjects except one: ABL, ADVENTRES, ARRIV, CHOS, CULD, FORIGN, GREF, HAPPNESS, MAK, MISED, SINC, TROUGH, ULTMATE, WOMA, WULD, CARER, SLAV.

The missing letters in these prominent mispellings tended to make words ambiguous in meaning or strongly suggested another pronunciation. Four of the respellings produced unexpected 3-letter consonant strings.

Comments on Experiments 1.1 and 1.2. Instructions alerted subjects to keep some sort of proofreading in mind, but the generally correct answering of multiple-choice questions following the story showed that subjects did indeed read for meaning.

i. There was no significant difference between CS deletions (88.7%) and non-CS deletions (86.5%), in total number of deletions noticed by subjects but mor non-CS words wer noticed by almost all subjects.

ii. Altho reading was silent, 20 words with deletions that markedly affect fonological representation wer noticed as spelling mistakes by mor subjects in Experiment 1.2 than wer the CS deletions in the same words - that did not affect pronunciation - noticed by the subjects in Experiment 1.1

Table 1. Comparison of SC and non-SC letter deletions in words in Experiments 1.1 and 1.2

a) SC letter deletions overlookd mor often than non SC deletions

	N subjects overlooking mispelling	'Visual' spelling	N subjects overlooking mispelling
COUD	26	CULD	1
WOUD	20	WULD	2
COLLECTD	19	COLECTED	3
SEEMD	18	SEMED	7
UNPLESANT	13	UNPLASANT	0
PEPLE	10	POPLE	3
ARIVE	9	ARRIV	1
ESENTIAL	9	ESSENTAL	0
VILAGES	9	VILLAGS	8
HANDSOM	9	HANSOME	2
LOOKD	8	LOKED	3
HAPPEND	6	HAPENED	5
MISSD	3	MISED	1
HAPINESS	1	HAPPNESS	0
	No difference		
TAUT	3	TAUGT	3
ULTIMAT	1	ULTMATE	1

b) SC deletions overlookd less often than 'visual-retention' deletions

SUCCESSIV	3	SUCESSIVE	17
ANSER	3	ANWER	10
TRUBLES	0	TROBLES	2
FORIN	0	FORIGN	5

a) SC letter deletions overlookd mor often than non SC deletions

	N subjects overlooking mispelling	'Visual' spelling	N subjects overlooking mispelling
COUD	26	CULD	1
WOUD	20	WULD	2
COLLECTD	19	COLECTED	3
SEEMD	18	SEMED	7
UNPLESANT	13	UNPLASANT	0
PEPLE	10	POPLE	3
ARIVE	9	ARRIV	1
ESENTIAL	9	ESSENTAL	0
VILAGES	9	VILLAGS	8
HANDSOM	9	HANSOME	2
LOOKD	8	LOKED	3
HAPPEND	6	HAPENED	5
MISSD	3	MISED	1
HAPINESS	1	HAPPNESS	0
	No difference		
TAUT	3	TAUGT	3

ULTIMAT	1	ULTMATE	1

b) SC deletions overlookd less often than 'visual-retention' deletions

SUCCESSIV	3	SUCESSIVE	17
ANSER	3	ANWER	10
TRUBLES	0	TROBLES	2
FORIN	0	FORIGN	5

Experiment 1.3 Subjects' judgments of 'surplus' letters in words

Method and materials. Thirteen adult subjects in a filler experiment wer askd to slash all letters that they considerd surplus to representation of meaning or pronunciation of words, in the six final paragrafs of the same text presented in standard spelling. The first 150-word paragraf was set out as an exampl in which 'surplus' letters wer already radically slashd. This was presented as a cancellation task, and reading for meaning was not requested. It could thus be seen as bearing a closer relation to the act of spelling than of normal reading.

Subjects' responses wer compared with an A priori classification of 107 words containing letters possibl 'surplus to representation of meaning or pronunciation'.

Results: No subject left standard spelling unaltered. 'Surplus-cut spelling' type deletions wer made in a mean number of 39.3 words, 36.7% of the deletions presumed eligible Only three of the pre-classified 107 words wer not slashd by at least one of the 13 subjects. Final <e> was deleted in the recurring word WER by all subjects.

However, subjects also slashd letters in another 39 words, beyond the A priori classification of feasibl deletions. They made an average of 16 such deletions each - significantly fewer than their CS deletions. They deleted silent <e> and doubld consonants regardless of their function. A significant minority of subjects wer not aware of morfemic principls in spelling and mutilated stem morfemes, and so reducing resemblances for related words. All subjects altered 35 words (11.4% of word-types), but they did not agree on which letters wer surplus within them. This could be because improvements in the spelling of the words might have require change of letters as well as deletions, but could also be due to confusion when mor than one letter might be dispensable or to uncertainty about silent < e > in the particpl <ed>. For exampl, MIHT, MIT and MIGT wer ways that subjects tried to cope with the obsolete spelling of MIGHT.

Of the possible types of surplus-cut deletions that could be made, these subjects wer most likely to delete doubld consonants, silent consonants as in COULD, FOREIGN and TAUGHT, and letters in words with more than one surplus letter, such as FOLLOWED and COLLAPSED. They wer least likely to delete silent functionless letters in -ED particples and in -EA, -OU, -TTLE, and -CK formations, as if they took these for granted as visual spelling patterns.

Fonological principls wer paramount, and the most commonly mutilated words remaind pronounceabl - apart from the vowel deletions of three idiosyncratic subjects whose cancellations produced words mor like those of young poor spellers, e.g. BOUGT, WOLD, SPOK suggesting that they had a rote visual memory for spelling that was not related to any underlying spelling system. Majority preferences wer to delete< gh > spellings and doubl consonants, but there wer differences and inconsistencies over visual or fonological solutions (e.g. ANSWR PEOPL), omitting the unstressd schwa vowel, deleting silent <e> and silent consonants, retaining stem morfemes, and using a singl letter to replace a digraf. Deletions made by subjects wer not related to the position of letters in a word.

Relation of deletions made in Experiment 1.3 and spelling errors detected in Experiments 1.1 and 1.2 ie. the relation of what readers notice in reading, and how they may understand spelling for writing. Responses of subjects (tho not all subjects) in the three experimental groups followed fonological, morphemic and orthografic principls, and while important, visual configuration was not primary even for the two groups reading for meaning.

The insignificant correlation of .09 between subjects' cancellations in Experiment 1.1 and subjects' respellings of the same words in Experiment 3.1 was in part a matter of individual differences, accentuated by the small N of 13 subjects for Experiment 3.1. However, a four-way relationship with the awareness of deletions shown by subjects in Experiment 1.1 resulted from the principles the subjects in 1.3 followed for surplus-letter deletion, plus their lack of awareness of another spelling feature - that letters which have a function in some spelling patterns in words may have no function in the same spelling pattern in other words, as with a silent < E > in the participle -ED and in digrafs such as -OU-.

Thus, some deleted letters in words that wer overlookd by most subjects in Experiment 1.1 wer also overlookd as candidats for deletion in Experiment 1.3, as in words such as ASKD, SEEMD, WORKD, UNPLESANT. Some deleted letters in words that most subjects in Experiment 1.1 noticed, wer also deleted by subjects in Experiment 1.3, such as TAUT, FORIN, ANSER, ALTHO, THRU, FOLOWED, COLECTED, COLAPSD, WEL, SEL. And on the other hand, deleted letters from COUD, WOUD and WER wer most likely to be overlookd in Experiment 1.1, and removed in Experiment 1.2, while the deleted letters in HEVY, REDY, SETL, TRUBL and CORT wer most likely to be noticed in Experiment 1.1 and not taken out in Experiment 1.2.

The data overall indicate that there is in fact a relationship of spelling for reading and for writing, tho the two are not identical.

All groups generaly used fonological and morfemic principls and seemd to have some idea of a 'form of the word'. They did not show real understanding of the use of double letters and silent <e> - possibly because their principls are not reliabl in standard spelling. Visual features wer shown to play a part in the identity of some visually-distinctiv irregular words, e.g. ANSWER, PEOPLE, but wer not the prime factor even for readers.

Readers particulate tended to miss deletions in words that improved fonological relationships or shortend words while still retaining the visual appearance of stem morfemes, e.g. INTEPRETER, PREDICTON, REMEMBERD, and they tended to notice re-spellings if the pronunciation was ambiguous, e.g. HEVY, HAPY.

The orthografic legality of letter sequences in conventionl spelling did not seem important for either subjects' own responses or their awareness of spelling errors in reading, altho this has been considerd significant by some theorists (see Adams, 1981, and c.f. Baker, 1980.) For exampl, subjects tended to overlook some rarely found final letter-sequences, such as -OUD, -SKD, -EMD, -BERD, -SUR, -RKD, -AIND, -OKD, -REK but did notice other words with changes that still produced legal sequences e.g. -ORIN, -EVY, -ATY, -LON.

Experiment 2 Readers' objections to spelling changes

Aim A replication study to observe adult readers' reactions to SC spellings in text, with a different subject group, different text and different task.

Materials and Method. A story about an adventure in a cave, which has also been used for reading time and comprehension experiments, both in print and on screen, consists of seven paragrafs of approximatly 100-150 words each. In this experiment, all paragrafs except paragraf 2 containd

words in radical SC spellings, making a total of 105 word-types that wer modified by letter deletion. Some of these words recurrd up to four times (discounting TH for THE which recurrd 81 times), so that a total of 131 word-tokens could be rejectd if the spellings wer disliked. 33 naive adult subjects wer askd to mark all the changed spellings that they disliked.

Results. No subject disliked all the spelling changes, and all subjects objected to at least 14 changes. Disapproval ranged from 14 to 73 of the 105 re- spellings, i.e. all subjects accepted at least 30% of the respellings, and some as many as 86%.

Disapproval ranged from 97% for CUD and 94% for AFTR, WITE, BELO, BETR, BOLDER (for boulder), DISLODG, FASND, LOOS, ROK and WAT to 54% for FRENDS, 51% for MAMOTH, 30% for FASINATN, 27% for EVRYWER, 6% for BOYS replacing BOY'S, and 9% for later occurrences of TH. One subject marked IRON as a disliked 'spelling change'.

Respelld words that wer not cancelld by subjects may have been left unchallenged for either of two reasons - because the subject was aware of the change but did not object to it, or because the subject did not notice the anomaly. For the purpose of the hypotheses behind this experiment, either interpretation is satisfactory. Further experiments could sort out the difference, or whether tedium became a factor (see below).

The passiv acceptance of TH in reading in this experiment contrasts with the lack of enthusiasm for the use of this shortening in the writing experiments reported here. Possibly its frequent recurrence relegated it to the status of background noise in this particular experiment.

Data from this experiment suggest some factors that may contribute to readers' perceptions of disliking or not disliking spelling changes, altho replication is required for verification.

1. Place in sentence. Readers of text have less difficulty in reading words that come later in a sentence, and there is some evidence that they pay less attention to their detail.

2. Place in text. Altho subjects wer askd to cancel every word they disliked when they saw it, the efect of repetition of a modified spelling during the reading session was to reduce objections to it, whether from modified attitude resulting from familiarity, or from acquired immunity to the novel appearance - or, of course, ignoring instructions thru tedium. This effect is significant on inspection. A changed spelling that was repeated, such as CASM WER, AFTR, and WITE, tended to be less noticed as an anomaly. Exceptions to this increased tolerance wer CUD, ENTRNCE and SEEMD.

3. Frequency of word.
i. The most common irregularly spelled words may appear mor objectionabl in an unfamiliar spelling.
ii. Subjects may be less certain of the correct spelling of a rare word.

4. Length of word. Subjects object less to or notice less a change in a long word.

5. Position of deletion. Subjects may object less to or notice less a change in medial position, or penultimate.

6. Silent letters are objected to less than commission of an unstressed syllabl.

7. Deletion from a doubld consonant arouses littl objection.

8. There may be mor objections to multipl deletions in a word.

Ratings of difficulty Following the task, subjects wer asked to rate the difficulty of the spelling on a 9 point scale. The second paragraf in TO provides a base-line.
These ratings can be regarded as low on a 9-point scale, altho subjects rated the radical version of 'surplus-cut' spelling as up to three times mor difficult than standard spelling. Individual subjects' mean ratings for the SC paragrafs ranged from 1.0 (the lowest possibl rating) to 7.8. Three of the 33 subjects rated standard spelling as mor difficult than the lowest possibl rating of 1.0, and their ratings for SC spelling wer not significantly different - possibly they are among the poor spellers who hope for improvements in English spelling.

However, in another experiment, not described here, that also used this text, the subjects' task was to read the story for meaning and answer comprehension questions. Ratings of spelling difficulty wer not significantly different from standard spelling after the initiating paragraf. It would appear that when the task has focussd on whether subjects object to the spelling, as in this experiment, ratings of spelling difficulty may be higher than when attention is directed to reading the content of the text.

Subjects wer invited to comment on the 'objections' experiment, and the four who responded show the extent and importance of individual differences - averages can obscure significant aspects of reading and spelling.

'Confused.' 'I did not like ordinary spelling either.' 'I have read a story in fonetic spelling before, so I was less irritated than I might have been'. 'It was easy *to read and make sense of. I kept expecting the long and difficult words to be misspelt but they wern't always. ' 'The abbreviations became easier but they annoy me. I'd rather see the whole word written out.'*

TABLE 2. Mean ratings of difficulty of spelling within a text

Paragraphs	1	2(TO)	3	4	5
N words with letter	33	-	28	27	32
Ratings of difficulty	2.76	1.12	3.33	2.96	2.94

Series 3. The effects of practice in reading surplus-cut spelling on spelling preferences and perception of 'superfluous letters in spelling.

In an unpublishd experiment (Yule & MacKay, 1986) 92 readers aged 15-50, classified as poor readers and average readers, undertook extended daily practice over three weeks in reading a series of 46 texts that had been transliterated into SC spelling, a total of up to 50,000 words for the faster readers, or read the same texts in standard spelling (traditional orthografy, TO) as controls. No training or explanation of Surplus-Cut spelling was given. Subjects wer only told to ignor any spelling changes. A series of paper and pencil and oral tests was included, and several of these tests, undertaken by some but not all subjects, showed how experience in reading SC tests significantly affected attitudes, understanding and application of SC principls.

Since this was an early exploratory study, texts varied in types of SC spellings - for exampl, EXPLAIND or EXPLANED; some texts retaind THE while others used TH; and some texts containd mor radical letter deletions than others.

Experiment 3.1 Preferences for spelling mode in reading
At the end of the first week of reading practice, 15 SC and 15 TO readers read a short passage about information tecnology which containd a choice of several spellings including TO for 40 words. Both groups of readers selected an average of eight words (20-30% of the options) that

they would prefer to read in surplus-cut spelling rather than in TO. This indicates at least some degree of popular dissatisfaction with present English spelling.

Experiment 3.2 Detection of surplus spellings by readers
Early in the second week of the reading-practice experiment, thirty SC readers and thirty TO controls wer given the task of canceling letters that they thought wer not needed in words, in a story of 104 words about a magician's daughter in which 71 words had irregular TO spellings.

Both the average and poor readers in the SC groups showed effects of their experience in reading in SC by making significantly mor SC-type deletions (mean letter deletions of 24.8 and 13.8 - that is, 35% and 19.4%) than did the normal and poor reader TO groups (mean deletions of 21.2 and 11.7, that is, 30% and 16.5%) $F(3,52) = 2.6$ $p<.05$.

Average readers made mor SC-type deletions compared with the poor readers, $F(3,52) = 9.9$, **p<.OI,** suggesting that reading ability is significantly related to understanding English spelling structure, as shown in greater competence in the task of judging what letters in words may be surplus to representation of meaning or pronunciation.

Experiment 3.3 Spelling preferences of writers.
Late in the second week of the experiment, the same 'Princess' story was presented to 43 subjects with instructions to write it out in the spelling that they personally would like to see establishd if they wer the masters to decide it.

The 22 average and poor readers who had been reading texts in SC tended to change the spellings of mor words (31.4 and 28.0 mean changes, i.e. 44.2% and 39.4% of the words open to changing) than did 21 TO readers (19.8 and 20.8, i.e. 27.9% and 29.3%). Tlc only subjects who made no changes at all to standard spelling wer four female average readers aged over 42 reading in SC and two in TO.

The SC group tended to make mor SC-type changes than the TO group (mean SC-type changes 27.7 and 17.4 words, i.e. 39.0% and 24.5%). Average readers tended to make SC changes that wer mor appropriat to the representation of pronunciation than did the poor readers, whose alterations wer mor likely to show a visual rather than fonological apprehension of word structure, e.g. ONC APON A TIM and IMAGATON.

Experiment 3.4. Spelling preferences of writers following reading practice in SC
Among the post-tests following the reading practice, 32 subjects who had been reading in SC and 23 subjects who had been reading in TO wrote out a paragraf of text in the spelling that they would like to hav if they wer the person who decided how the English language should be written down. The 80-word passage, about catalogs for tourists at a castl included 50 words in SC spelling, which subjects could change as they liked. (The TO-readers had experienced SC spelling in oral reading of two paragrafs two weeks previously.)

All target words wer transcribed in non-standard spelling by at least one subject. The average target word was written with shortend spelling by 66% of SC subjects and 25.9% of TO subjects, and with changed but not shortend spelling, by 0.6% of SC subjects and 0.3% of TO subjects. The shortend spellings wer not necessarily written according to the SC model provided, and often included letter changes. Longer respellings wer rare.

The importance of the experience of three weeks' daily reading in SC was shown in the high proportion of spelling shortenings that wer made by the SC subjects. This experience had given them a model of spelling change that influenced their own changes, and also influenced their

thinking about spelling, as shown in the fact that they wer also mor radical than the TO subjects in devising their own spelling deletions and letter changes - individual subjects even shortend AND, WHO, FOR and BE.

The significance of an availabl model for spelling change is shown in the greater proportion of spellings that wer shortend by the TO subjects, compared to the shortenings made by TO subjects who wer given no model in Experiment 1.1.

For SC subjects, the most important factor influencing letter deletions in their transcriptions was the length of the word. On average, one syllabl words wer shortend by 57% of SC subjects, words of two syllabls wer shortend by 62%, three syllabl words by 70.9% and if words wer four or mor syllabls, such as RECOMMENDATION, INTERROGATE or EXCEPTIONALLY, 90.6% of SC subjects shortend them. 75% of SC subjects changed the spellings of words which wer open to two or mor changes, e.g. LITL, MARVELUS.

For subjects who had read thruout in TO, the trends for spelling changes of most words tended to follow the same direction as SC subjects but at a modest level with only 4 to 35% of TO subjects changing these words from standard spelling. However, one set of words was dramatically different, and closer to SC proportions of change. 40-60% of TO readers shortend the spellings of FASHIONED, EXCITING, RECEIVE, RECOMMENDATION, DISCOURSE, TRAVELLING, CHARACTER, MARVELLOUS, PROGRAMMES, CATALOGUES, EXCEPTIONALLY and INTERROGATE. The likely explanation is that these are all words that writers find difficult to spell and write out correctly in any case. Long words that are difficult to spell therefor seem obvious candidats for immediat public adoption of SC changes as alternativ spellings.

All types of SC deletions wer made by subjects - deletions of doubld letters, superfluous letters in vowel diagrafs, and silent vowels and consonants, including final silent <e>, altho deletion of schwa vowels, as in VISITR, was less popular.

It may be noteworthy for public relations in introducing surplus-cut spellings that no TO subjects and only 18% of SC subjects copied the model of TH for THE, altho this would bc a major time-saver.

In subjects' post-test comments on the total reading-practice project, reactions to surplus-cut spelling varied from hearty welcome to increased irritation. Some subjects gave instances of difficult TO spellings as the spellings they had disliked the most, while others spontaneously instanced irritated responses to recurring TH. One SC subject claimd to have noticed no difference from normal spelling. Others reported rapid adjustment. Overall, the responses wer positive.

Experiment 4. Ratings of acceptability of listed surplus-cut spellings
Twenty adult subjects rated their approval of 60 sixty SC-type respellings of words on a five-point scale ranging *upward* from strongly disliked to greatly liked. (1) Tables 3 and 4 show the findings.

Deletions in less familiar words listed also appeared to increase disapproval, perhaps thru lack of context to reinforce semantic access. Length of word or position of deletion in the word was irrelevant.

TABLE 3. Mean ratings of acceptability of SC-type respellings of words.

Words	Ratings
MAGNAT LETRHED	1 .7
MAMAL CATRPILR KNOLEGE SUDNLY NIBL AQITL SOVREN SIV CARACTR FORIN PEPLE INOCUUS LITL WER PERLY ZELUS ENDEVR	2.0-2.5
MISCHIVUS UNPARALELD THERFOR ILITERAT ALTHO PSYCOLOGY IMEDIATLY PEKS WHER EXESSIV EFECTIV PROFESSR WOUD POSIBL	2.6-3.0
GARDIAN ASASSINS BALERINA DIFERENCE DISIPLIN HORD MOLD MILIONAIR OBSTINAT ACOMODATE MOSQITO FESANT THEMSELVS OCASION FRENDS	3.1 -3.5
COCO ESPECIALY RECOMEND DONKY DISAPOINT MATRESSES	3.6 -4.0
COLOR MINITUR.	4.0-4.3

TABLE 4. Mean ratings for categories of letter deletions

Generally approved:	Words	Mean Rating
Double letters	10	3.4
Unstressed vowels	11	3.4
Final silent vowel	9	3.0
Neutral:		
Consonant	2	2.9
Disapproval:		
3 letters deleted	6	2.2
2 letters deleted	24	1.6

Discussion

This series of experiments has focussed on public response to the deletion of surplus letters in English spelling for both reading and writing on the grounds that -

1. Reforms that have the support of the literat population have a better chance of early adoption.

2. Informal explorations indicate that spelling changes by deletion rather than by substitution are more acceptabl to readers because they make minimal disturbance to visual configurations of words, and are more acceptabl to writers because they are more economical and make minimal disturbance to grafo-motor habits. Yule & Greentree (1986) found that readers adjusted rapidly to 'surplus cut' spellings in text, but spelling reforms involving letter changes wer more disruptive.

Findings in the present experiments show that there would be considerabl public support for moves in the direction of omitting surplus letters. Among the hundreds of subjects participating in these and similar experiments and so gaining hands-on experience, there have been hardly more than a dozen who rigidly opposed any change, and 'if you wer the master of spelling' experiments are always popular. (Opinions in any *surveys* about changes are mor likely to be conservative of course.)

Findings are of interest for theories of reading and writing, which in turn must provide the foundations for any reform that will really be of benefit to users and learners. For example, the data support claims that spelling for reading and for writing are not handled in the same way, (see e.g. Frith 1979, 1982) but the similarities between them do not support sweeping generalisations of 'reading by eye, spelling by ear' or claims that what benefits writers will handicap readers. A full discussion is postponed for reasons of space, but some start-off references are included in the bibliography.

Comments here focus on practical points, including features of surplus-cut spellings that appear of primary acceptability and comprehension, and features which may initially elicit rejection of the whole enterprise and might advisedly be postponed pending public education. However, replication and extension of these experiments is required to establish these findings, particularly to explicate systematic relations between the spelling deletions accepted by readers and those applied by spellers.

i. Readers of text tended to overlook (accept) letter deletions, whether SC, CS or not, that improve fonological relationships, or occur in long words that retaind the visual appearance of stem morfemes, e.g INTEPRETER, PREDICTON, REMEMBERD.

ii. Readers wer more likely to notice deletions when pronunciation became ambiguous or distorted (CUD and WUD wer unpopular, probably for this reason) two or more letters wer deleted, or novel three-letter consonant strings resulted. Deletion of final silent letters in monosyllabls (apart from WER) and reduction of vowel digrafs also tended to be intrusive, even altho improving fonology.

iii. Some of the most popular spelling deletions made by writers in Experiment 3 (WOUD COUD WER ASKD) wer among those most likely to be overlookd in reading too, a double support for the proposition that the letters deleted in these words wer in fact surplus. However, the more often a misspelld common word appeared in the same text, the more likely it became to be passd over, despite instructions to miss no examples, suggesting that either familiarity or tedium reduces continued canceldation.

iv. The SC principles that writers picked up and applied immediately wer deletions of silent <e>, silent consonants, doubld letters and in vowel digrafs. Vowels in unstressd syllabls wer less commonly deleted.

v. Legal and illegal letter sequences in TO do not seem relevant for either subjects' own spellings nor in noting changes in reading modified spellings, contrary to the literature, often based on single-word studies, that has assumed that orthografic legality could be more important to users than spelling structure. (See e.g. Adams, 1981, Baker, 1980)

vi. Morfeme representation - the -ED participle. Results confirm the findings of Smith & Pattisonn (1982) who found that omission of errors in letter cancellation are more common in affixes or pseudo- affixes than in the same position in a word without affixes. (See Henderson 36, 1985.) Henderson (63) also cites studies showing that subjects asked to cancel out the letter <e> are more likely to miss targets that are part of an inflectional suffix. Smith & Sterling (1982) found that the letter <e> was overlookd most in the -ED inflection, but not so missd when nonaffixd as in hundred, with a roughly equivalent rate for <e> in comparativs such as CLOSER, agentivs such as DRIVER and pseudo-affixd simple words such as RIVER.

It seems to me that both fonology and unstressd schwa are involvd here. Such findings indicate that grammatical features shown in orthografy may be relevant in reading, and that affix-like

orthografic patterns have a distinct perceptual status. This is supported by the general failure of naive re-spellers (Experiment 1.3) to recognise when <c> in such affixes has no fonemic function, and of readers to notice their omission less in monosyllabls than in polysyllabls (e.g. overlooking ASKD and SEEMD but not REVEALD or COLLAPSD).

It could be possibl that the spelling WER is generally accepted by both readers and writers because of its relationship with ARE (which is not accepted easily as AR).

vii. The *shortend spelling TH* was not a deletion made by writers, despite its obvious value for economy of paper as well as effort, nor was it popular with most readers, tho repetition within the same text appeared to increase tolerance. Since a significant number of respondents reported actual irritation at this ubiquitous change, which significantly affects the visual appearance of text, TH may not yet be advisable in texts written to acclimatise the general public.

Education.
It is clearly important that all children be given an understanding of fonics and TO's unknown under-lying spelling system, and that some way be found to enlighten literate adults as well, so that spelling improvement can be both understood and welcomed. (This understanding is one aim of the half-hour computer animated cartoon video *Teach Yourself to Read, or find out where you got stuck,* Yule, 1993.)

Subjects often did not seem aware of the functions of silent < e > as a modifier of a preceding long vowel, nor of double consonants as modifying short vowels, nor of CK as a special case of a doubld consonant, suggesting that the early learning of spelling may have been mere rote without understanding - or forgotten long since.

Related experiments that are needed:
i. Studies of writers' spelling mistakes compared with their own spelling preferences and tolerances in writing or reading as an exploration of useful orthografy for reading and writing.

ii. Similar experiments on reading in other modified spelling modes of English spelling reform must involve letter changes to repair unsatisfactory sound-symbol relationships not solvd by surplus-cut principls. Ives (1992) has suggested steps for this, including the encouragement of public use of the more fonemic spellings when dictionaries accept two or more alternativ spellings for words - as they do already for over 3,000 words (Emery 1973), and 2,000 of which are to be found in American college dictionaries (Deighton 1979). A further step in this direction can be testing and so encouraging public responses to fonemic letter changes such as Ives has suggested commencing with the consonants, as the most simpl and obvious to rationalise.

(1) Eight non-native speakers of English also participated, since the attitudes and opinions of international English-users are important, but altho they were all post-graduate University students, it was found that too much of the vocabulary was not known to many of them even in TO, and even by some who had been resident in Australia for ten to twenty years. It may help future researchers to exclude words likely to be unfamiliar to ESL subjects, which include MAGNATE, LETTERHEAD, MAMMAL, ACQUITTAL, SIEVE, INNOCUOUS, ZEALOUS, HORDE, UNPARALLELED and even COCOA.

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Yule, V. 1993. *Teach yourself to read or find out where you got stuck* Video. Melbourne: Literacy Innovations, P.O. Box 299, Kew, Vic. Australia 3101. This half-hour video is experimental and needs financial sponsorship for upgrading, but is still useful and entertaining. (Video with 2 manuals A$35 not including p&p.)

APPENDIXES. The experimental materials and data are available on request.

[Journal of the Simplified Spelling Society, 16, 1994-1 p16 in the printed version]

Letter

January 21, 1994 ...

The Simplified Spelling Society quite correctly maintains that the English language contains many irregular spellings. They cause particular hardship to the very young.

The federal government is not in a position to mandate changes in school curriculum. Therefore, I urge you to bring the alternative you propose to the attention of the states. This can be done through the associations that deal with curriculum matters. ...

I hope this information is helpful to you, and I wish you the very best of success.

Sincerely, (signed) Nevzer Stacey, Director
Higher Education and Adult Learning Division
United States Department of Education

[Journal of the Simplified Spelling Society, 16, 1994-1 pp17-23 in the printed version]

4. Regularity and Representation in Spelling: the case of Esperanto

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1 Introduction.
A previous paper in the *Journal of the Simplified Spelling Society*, Pitt (1987/2, p13) briefly demonstrated Esperanto's phonetic spelling system as it compared to the phonetic system called "New Spelling". The conclusion was that Esperanto consistently represents pronunciation, and that diacritics and strict phonetic spelling do not obscure etymological factors which are important for the international appeal of Esperanto. However, there are problems of implementation of the system as a working model, since one may question the regularity of the system in use. In an attempt to widen the analysis of Esperanto's spelling problems, this study will consider the lessons that can be learned from Esperanto's long experience.

As pointed out before (Pitt 1987, Large 1985), groups such as the Simplified Spelling Society and the artificial (or planned) language movement have many common aspects. Both are special interest movements, with publications, enthusiasts and schools of thought. Both are concerned with introducing more rational language systems. And both attempt to reform established language practice. Hence in this study, the simplified spelling of Esperanto will be discussed in the light of practical issues arising from its creation, implementation and effectiveness.

The present author draws most examples of Esperanto and creole usage from work carried out at the Institut d'Etudes Créoles Français in Aix-en-Provence and the Universala Esperanto Asocio (UEA) central office in Rotterdam. The symbols < > indicate graphemes, / / phonemes and { } literal

translations.

2.1 Esperanto's spelling system
As outlined by Pitt (1987), Esperanto uses a 28 letter roman alphabet, each letter with a single phonetic value. The pronunciation is here set out using equivalent English graphemes (capitalised) as a rough guide:

a - Act	b - Bat	c - paTS	ĉ - caTCH h	d - Dam	e - nEt
f - Fact	g - Go	ĝ - Jeep	ĥ - *Scots* loCH	i - kEEp	
j - You	ĵ - pleaSure	k - Kit	l - Lord	m - Me	n - Nail
o - lOAf	p - Pull	r - *Span.*: padRe	s - Sat	ŝ - SHe	t - aTe
u - tOO	ŭ - voW	v - Vote	z - Zip		

The letters <w, x, y> are not used. Because of Esperanto's phonetic nature combinations of letters do not form new sounds, and so although there is an initial equivalence, the letter system does differ considerably from that of many national language scripts. Before discussing the implications of this, the following example text gives an indication of what Esperanto looks like. It reports on the 1991 Esperanto conference at Bergen in *Esperanto* the UEA periodical (Dec. 1991, p217):

'Politiko' estas delonge tabua vorto en multaj esperantistaj rondoj. Tial surprizis, eĉŝokis, la okulfrapa ĉeesto de la Radikala Partio en Bergeno. Aŭ ĉu ĝi nur celis veki nin el dormo? Renato Corsetti klarigas...

{'Politics' has long been a taboo word in many esperantist circles. That's why there was surprise, even shock, at the eye-catching presence of the Radical Party in Bergen. Or did it just aim to wake us from our sleep? Renato Corsetti explains...}

2.2 Typography: whose alphabet is better?
Besides attacking Esperanto's euro-centricity, traditional criticism of Esperanto orthography has almost exclusively concentrated on the letter set rather than actual spelling (Crystal 1987, Large 1985, Pitt 1987, inter alia). The accented letters, distinct from most national scripts, are widely criticised. For those who had no access to 'continental' typewriters, Zamenhof (the language's inventor) proposed adding the letter <h> as a typographical alternative to <^>. This still appears in some typed messages, but conflicts with usage in national languages. For example <ch> and <gh> for the affricates<ĉ> and <ĝ> conflict with Italian, which uses this convention to mark velar stops as in *chiaro*, *ghia* and the converse for affricates *ciò, già*. More importantly, such digraphs broke the phonetic principle that one sound should equal one character symbol, especially in a language which routinely forms compound words such as <pus-hava> {festering}, which could be written as <pushava>. This may be a problem of consistency rather than one of practicality. In any case, the problem has partly melted away, since most publishing tools and word processor packages cater for a larger east- and non-European market and allow non-standard accents.

Critics, often from within the movement, have also pointed out the difficulty in justifying redundant letters. The letter <ĥ>, originally used to replace <ch> in words of Graeco-Latin descent, is becoming rare, being replaced by <k> whenever possible in a kind of unofficial reform, whereby the preferred pronunciation has orthographic repercussions (cf. replacement of <ch> in <kilo>). This evolution is not recognised by the Esperanto Academy but is registered in terms of alternatives in dictionaries (Wells, 1969). Hence <h ĥaoso> becomes <kaoso>, {chaos}, ĥemio> becomes <kemio>, {chemistry}, and so on. However, a handful of common minimal pairs prevent this process, since replacement by <k> would create an existing word: <koro> {a heart} versus <ĥoro> {a choir}, <eko> {suddenness} versus <eĥo>, {an echo}, and <kolero> {anger} versus

<hflolero>, {cholera}. Since <h> fell into aesthetic disfavour the spelling system was obliged to change in part, leaving spelling very much up to the hesitant user and thus threatening the system's internal consistency. It shall be seen that this process is not the only cause of hesitation.

The problem of whether to avoid homographs is one of efficiency versus consistency, and this can be seen more clearly in Esperanto's word-stock and in the etymological problems its has faced.

2.3 Etymology: whose words are recognisable?

It can be seen in the example text that Esperanto's spelling system is a phonetic amalgam bringing together the diverse spelling traditions of major European languages, and this fact itself accounts for a great many problems in devising one unique phonetic spelling system from a language with diverse roots.

On the one hand, there are some sound-symbol relationships that are common to many major western European languages (hitherto referred to as European) thanks to the historic development of the roman alphabet. On the other hand, languages have adopted the roman alphabet at different stages and with diverse phonetic backgrounds. What this means in practice is that for any 'borrowing language', which Esperanto largely is, lexical items from all source-languages need to be fitted, sometimes uncomfortably, into a necessarily restricted sound-symbol system.

For Esperanto the methods and degrees of transition have varied, although the overriding aim has been to use symbols and sounds that are common to at least some of the languages of the target group of speakers. The language's inventor, Dr Zamenhof, himself knew several Slavic, Germanic and Romance languages as well as Hebrew (he was a late-comer to English), and it has been pointed out (Large 1985, Don Lord 1989) that he attempted a shrewd policy of 'language marketing' in order to target well-educated, polyglot readers from central Europe. To a certain extent, Zamenhof succeeded, although as the following section shows, the task of a watertight a posteriori system is impossible.

Esperanto usually attempts to take on international words as close to the original spelling and pronunciation as the orthography will allow. Where there are several versions this assimilation is achieved by slightly altering a word to create a 'neutral' form, taking care to keep the number of syllables or to avoid homographs. So from a common core of words derived from Latin <ordo> (French *ordre*, Italian *ordine*, Spanish *orden*, Portuguese *ordem*, German *Orden*/*Ordnung*, English *order*, Russian /*orden*/) Esperanto forms <ordeno>, and since the root has two main senses, as can be seen in the derivations, a second word is chosen to convey the second sense <ordo> {arrangement}. Where a third meaning has evolved in some languages, Esperanto adopts a third variant, <ordoni> {to order, command}. Where the choice of consonants and vowels is not so clear, Zamenhof selected a third median choice, as in <lingvo> from the Latin <lingua> (*langue, lingua, lengua, língua, language*). Here also, Zamenhof chose to add the word <lango> {tongue}. In other cases, common words are chosen, not necessarily from Latin, and a neutral form is chosen, eliminating double letters and imposing the Esperanto writing system. In <bufedo>, derived from (French, Italian Spanish English *buffet*, Portuguese *bufete*, German *Büfett*, and Russian /*bufet*/), the possible form <bufeo> from the most common pronunciation is avoided, and <bufeto> is avoided since this would cause homography with the word <bufo> {cf. Latin: a toad} and its Esperanto derivative <bufeto> {a small toad}.

One of the attractions of Esperanto is that the language's inventor, Zamenhof, and subsequent leading writers and lexicographers (Golden, Waringhein, Wells) in the Esperanto movement have attempted to maintain a principle of avoidance of homophones and homographs in the language, hence the creation of 'gemellates' (<ĝemelaj vortoj>, Bastien: vi), where the root (or roots if these diverge in different languages) which the Esperanto word is derived from has several senses and

where Esperanto represents each sense orthographically, such as <tablo> {table}, <tabulo> {tablet, board}, <tabelo> {a written table} and <tavolo> {a flat thin surface, 'water table'}, all ultimately from Latin <tabula>. In the table below, the representation of these different senses in the main European languages shows that languages have a varied representation of concepts, sometimes maintaining or mutating the Latin (or other original) forms, sometimes relying on the same forms and sometimes using forms of a different etymology (only English examples of this are given in the column *Senses*, and related words where the meaning is slightly different are placed in parentheses):

Senses	'table'	'panel, board'	'written table'	'flat, thin surface'
Latin		tabula		
Esperanto	**tablo**	**tabulo**	**tabelo**	**tavolo**
French	table	(tablette)	table	(table)
Italian	tavola	tavola	tavola	(tavola)
Spanish		tabla	tabla	(tabla)
Portuguese	tábula	tábua	tabela	(tabloeiro)
German	Tafel	(Tablett)	Tabelle	
English	table	(tablet)	table	
Russian			tabel'	

This avoidance of homographs and studious search for terms which will be unambiguous accounts for many of the slight changes in orthography between Esperanto and its donor languages, and also accounts for a sizeable semantic mismatch of <falsaj amikoj> {false friends} where the language has a different conceptual coverage, yet uses terms which are similar in form to those of the donor languages.

However, this creates another problem. One of the original claims for Esperanto was that since it contained common 'International' words the lexicon would be easier to memorise. 'International' words include items such as cultural internationalisms: <futbalo, taksio, teatro, radio, telefono, programo, sanviĉo, bifsteko> and many academic, scientific, technical or abstract lexical items that have come from Latin, Greek and French: <politiko, sistemo, renesanco, biologio, teatro...> are almost unchanged in many of the world's languages. As mentioned above, there is a marketing value of such a choice in order to convince potential Esperantists and make life easier for the most likely users (educated Western Europeans, at least).

However, many common lexical words have been chosen at random and are consequently not so transparent or 'international' as the Graeco-Latin scientific and abstract items. In general fields such as animals (<birdo> {bird}), or tools (<ŝraŭbo> {screw}) or common objects (<bastono> {stick}) the choice tends to be towards items that have spellings which do not clash with other Graeco-Latin terms. This may be why <birdo> was chosen instead of <avio> (too close to <avo> {grandfather}), although there is no evidence of such a systematic approach. Also, large amounts of textual or 'grammatical' lexis in Esperanto are incomprehensible for non-initiate Europeans and even more so for non-Europeans. Esperanto has been criticised for this, although grammatical terms in many languages tend to be less transparent, and therefore Esperanto is sometimes no less opaque than other languages.

Some words in Esperanto are the same as their originals, for instance, in the example text, I can spot <nur> {only} (German), <en> {in}, <de> {of} and <la> {the} (French and Spanish). Similarly, in the example text there are many words derived from European roots that are recognisable. but altered by the phonetic system and the use of word-class endings for adjectives and nouns: <politiko, radikala, partio, dormo>, or altered by other elements of the morphological system <surprizis> {surprised}, <estas> {is, are}, or a combination of the two: <multaj> {many}, <klarigas>

{makes clear}. Other words are more obscured by phonetic or morphological conversion, <ŝokis> {shocked} <veki> {to wake} <tabua> {taboo} in English, <aŭ> {or}, <okulo> {eye} from Latin and <celis> {to aim} from <zielen> in German, Russian /celit'/ (Bastien, 1950) or /telos/ in Greek (cf. 'teleology').

In the sense that irregularity is inconsistent, one could criticise Esperanto for spoiling its own 'internationality' by such processes. Certainly, phoneticisation, morphological innovation and regularisation do not represent universal characteristics of the languages Esperanto attempts to bring together, although Esperanto in itself enjoys a very high morphological consistency.

The members of the Terminologia Esperanto-Centro adapt and publish all new vocabulary, after the approval of the independent Akademio de Esperanto, whose role is to protect the level of Esperanto use and check the evolution of the language, especially in publications (Lapenna, p664). New terminology is not immediately officialised. Here, 'officialised' implies that the lexical item is published in the Plena Ilustrita Vortaro (PIV) {Complete Illustrated Dictionary}. Such is the case of the Esperanto word for 'computer', which varies between <komputero> (international form), <komputilo> {computing-tool} and <komputatoro> (resembling the recent Latin <computatorum>, not to be confused with the Latin <computatoriam> {counting tool}), until the 1987 edition of PIV included <komputilo> (Duc Goninaz, 1988 p90). According to Duc Goninaz it appears that the regular Esperanto version, formed by the internal rules of word-formation, is generally more popular than unclear phoneticised international terms (Duc Goninaz, p91).

As mentioned above, the methods used to provide a 'neutral' term often follow the natural evolution of sounds of words as they were exchanged between languages. Bastien (xii-xvi) catalogues 18 major phonetic changes which took place between Esperanto's donor languages, of which these are the main examples (taken from Latin, French, Italian, Spanish, Potuguese, German, English, Russian):

Labials /b, v, p, f/ are interchangeable: Esperanto <fosto> German <Pfosten>, {post}.
Dentals /d, t, s, z, th/ are also interchangeable: Esperanto <tago, dento> English <day, tooth>.
Esperanto <k> often etymologically replaces <ch>, <sh> and <esh>: <kateno>, <chaîne, chain>.
The letters <es, as> and <e, a> are interchangeable in Romance languages: <skalo> from <escalier, escala, scale>, <emajlo> from <émail, smalto, esmalte, enamel>, <tasko> from <tâche, task> etc.
The letters <l, r> are often interchangeable: <sabro> from <sciabolo, sable, sabre, Säbel>.
The letter <u> is in Romance languages often interchangeable with <l>: <sau&co> <salsa, sauce>.
Esperanto systematically replaces <qu> and <gu> by <kv (akvo)> and <gv (gvidi)>.
Italian plosives /b,p,g,k/ disappear before consonants, <flegmo> <flemma, phlegm>, <l> disappears after consonants <blanka> <bianco, blank>...

Esperanto may therefore elect to avoid phonetic and othographic innovations introduced by each individual language, electing either to select a common version which eliminates the chances of language-specific irregularities, to go back to the etymology which often reveals a common form, or to elect one candidate, making sure that its form is relatively simple and does not clash with homographs. There are many exceptions to this, and for the most part the choice has been assumed to be of a personal aesthetic nature. However, some examples of these general principles may be set out in a flow chart:

Either: *The appeal to internationalism*
1a Choose the most common (European) form: <rifo> from <récif, arrecife, recife, Riff, reef, rif>
1b Avoid homographs: <magazeno> {shop} <magazino> {magazine}
1c Choose an intermediate common form: <zibelo> from <zibeline, zibellino, cebellina, zebelina,

Zobel, sable, sobol'>
1d Avoid orthographic (clusters), phonetic (difficult diphthongs) and morphological interference (endings): Phonetic <rendevuo> {rendez-vous}, <enui> from <ennuyer, annoiarsi, enojo, annoy>.

Or: *The appeal to etymology*
2a Choose the Latin form: (<persiko> < <persicum> {peach}).
2b Avoid homographs: <rado> {wheel} instead of Latin <rota> {Esp: rout}.
2c Choose an intermediate Latin form: <reg ^o> {king} not from <rex> but from Latin derivatives in many languages in <reg-> {regal, royal} and <reg ^o> instead of <rego> {ruling, control}.
2d Avoid clusters, orthographic/morphological interference: All Esperanto words in <-cio>: <situacio> from <situation, situazione, situação, situación, situacia>.
Or: *The appeal to simplicity*
3a Choose a form from another language: <birdo> opposed to <oiseau, ave, uccello, Vogel>.
3b Avoid homographs: <cendo> {a cent} opposed to <cento> {a hundred of...}.
3c Choose an intermediate form: <svingi> <Schwingen, to swing>.
3d Avoid clusters, orthographic/morphological inter-ference: <rusto> from <rouille, ruggine, Rost, rust>.

As noted, exceptions to this abound. Why, for example, should <emajlo> have been selected from the choice of <smalto, esmalte, émail, enamel, emal'> when many Latinate spellings in <e, es> are replaced with <s>? The answer, according to many Esperantists is that the writers of the major bilingual dictionaries (Waringhein in particular) favoured French since the French movement was very much the motor of publishing in the first fifty years after the movement's début in 1887. The first conferences were in Boulogne, and as many as half of the early movement's members were French. Also, the French based SAT (the World Association for Neutrality) printed the most influential monolingual dictionary in 1934, the Plena Vortaro of which PIV is a more recent and greater extension, under the guidance of Frenchmen such as Waringhien. This step has proved to be of influence ever since, and is mirrored in the influence of the first dictionaries for creole languages (Chaudenson, 1989).

2.4 Phonetics: does the alphabet reflect the language?
The Esperanto use of near-phonetic symbols to replace variants, such as <k> for /k/ spelt variously in European languages <c, k, qu-, ch->, as in <cat, Katze, quatre, chiaro>, is a common replacement in many English and French creole orthographies. But Esperanto has to cover a variety of languages. Replacing several letters for one sound (di- or trigraphs) such as English <sh>, German <sch>, Dutch <sj, -sch>, French <ch>, Italian <sci, sce> by <ŝ> is a convenient method of conversion to a unified system. But some solutions are problematic, since there is no strong candidate. The sounds of the Esperanto letters <j, j ^, g, g ^> are often represented by each other or by <y> in other roman scripts and are therefore confused. Pronunciation of the Esperanto letter <c> also causes hesitation for anglophone learners, especially in clusters such as <scias> /stsías/ {knows}, as do other misleadingly familiar letters used for different sounds in other roman alphabets. At the UEA office, for example, Esperantists would on occasion write 'africo' instead of 'afriko' if they had been working in other languages.

An often unconsidered problem is the strict sound-symbol relationship that Esperanto attempts to maintain in spelling. This principle has been used to defend the use of both <u> and <u&>. In fact, <u&> is only commonly found in three diphthongs:
1 <aŭ> /aw/ as in <baldaŭ> {soon}
2 <eŭ> /ew/ as in <Eŭropo>)
3 <oŭ> /ow/ in the one-off <poŭpo> {a ship's poop}

and in the word <ŭato> {watt} and in some exclamations (Julius Caesar shouts <aŭ!> in *Asteriks la Gaŭlo,* Tintin's dog barks <ŭa!>). Although <aŭ> or <eŭ> could be replaced by <au> and <eu>, especially medially, thus giving <autoro> and <Europo>, it is felt that replacement of the word-final <ŭ> as in <baldaŭ> would be unacceptable, not only because final-position <-u> is the imperative form of verbs but because <û> is still felt to be distinguishable phonetically as a semi-vowel and can be opposed to such non-diphthongs as in the word <balau> {brush up!}.
But a phonographic spelling system cannot exactly represent sound-changes according to phonetic context, indeed, it would then be a true 'phonetic' alphabet. In the following, the sound /k/ has different allophones according to surrounding sounds (Wells l975)

<kiso> /-k+iso/ {kiss}
<kaso> /-kaso/ {cash-box}
<kuzo> /-k̲uzo/ {cousin}

This does not cause a significant problem, until one considers that Esperanto is an agglutinative language, where the context of sounds may be changed by juxtaposition of lexemes, a regular feature of the Esperanto's lexical system. As Wells (pl7) notes, since there is velarisation of /n/ before voiced consonants as in <banko> /baŋko/, disambiguation of the following homographs (one a single word, another a compound word) is only possible by pronunciation:

langusto /laŋgusto/ {spiny lobster}. langusto /lan'gusto/ from lan-gusto {a taste for wool}.

Some Esperantists dispute this, pointing to the fact that <lan-gusto> is usually pronounced /laŋgusto/ and that similarly <banko> is pronounced /baŋko/ (Lord 1993), although they do not deny that Esperantists have recourse to the glottal stop in conscious attempts to disambiguate morphemic boundaries in such words, or to clarify repeated vowels and consonants caused by agglutination. Sometimes compounds of two root words, or a morphological affix and a root word, will contain repeated vowels, a feature avoided in Esperanto's basic lexical stock. Lord points to possible pronunciations of <heroo> {a hero} as /hero'o/ or <treege> {very much} as /tre'ege/ instead of an extended /ē/ as in the Dutch <moerbeek>. Other Esperantists have attempted to teach a more 'phonetic' pronunciation, such that <banko> would be pronounced /ban.ko/, where the /n/ is an alveolar stop (Williams, 1986), although this view is far from widespread.

Despite the efforts Esperanto-dictionaries make to avoid homographs, many common and impromtu compound words create such ambiguity as <larĝemo> or <larĝ-emo> {tendency to be wide}, and <larĝemo> or <lar-ĝemo> {sea-gull's cry} which give flavour to Esperanto poetry and casual conversation (for discussion cf. Gregor 1965). Later usage established the hyphen <-> to distinguish unfamiliar compounds and to represent the (optional) glottal stop which would disambiguate <langusto>, although the glottal stop is difficult to articulate in morphological boundaries where there is a vowel. The classic case is the word for cassette <kaseto> which clashes with <kas-eto> {a small cash-box}. Some speakers adopt the term <kasedo> specifically for 'audio cassette' although not all the dictionaries agree with this usage. Other common cases remain unresolved, and despite the rules, in the written language Esperantists use no hyphens for affixes, and very few for compound words, allowing context to disambiguate combinations.

An original feature of Esperanto is that word class markers are regularly used to distinguish lexical words (as opposed to functional words) such as <-o> {noun}, <-a> {adjective}, <-e> {lexical adverb}, <-i> {finite verb}. These are treated as morphemes, minimum meaningful units usually existing as an affix, and the separation of such morphemes as well as compound word boundaries by <'> was Zamenhof's system used in the first Esperanto books (<Internaci'a Lingv'o de Doktor'o Esper'ant'o, 1887>) with the aim of distinguishing morphemes for learners. This would distinguish <larĝ'emo> and <lar'ĝemo>, but the system is no longer in use, even in teaching materials. Another way to avoid the problem may be to include the original word-class morpheme in the

compound word, thus creating the forms <larĝa'emo> or <laro'ĝemo>. Strictly speaking only the noun ending <-o> can be inserted between two roots within compounds and <larĝa'emo> would be treated as two words {wide tendency} rather than as one <larĝemo> {tendency to be wide}. Esperanto's grammatical rules indicate that <-o-> may be inserted for reasons of euphony, where the root may be juxtaposed to letters which would change the meaning, and for personal preference, so <birdonesto> {a bird's nest} is preferred over <birdnesto>. But since most compounds are original creations of the speakers and writers, expressing often new or unconventional concepts, the word-class of certain elements will be undecided. As a rule, such endings do change the meaning. For instance, <finmanĝi> {to eat up} consisting of the three morphemes {end-eat-finite} exists rather than <finemanĝi> or <finomanĝi> with their own possible interpretations {to eat at the end} and {to eat the end}. This insertion is not possible with compound forms using functional words or common affixes, eg <mallarĝa> {'opposite-wide', narrow}.

In addition such compound words create digraphs (groups of letters indicating one sound in some national languages) such as <-sh->, <-th->, <-gn-> and double letters such as <ll> or <cc>, which may cause assimilation or hesitation in pronunciation in a language where all the root words are kept as free as possible from difficult consonant clusters. For example, <mal-> {opposite} creates <mallonga> {short} where the /l/ sounds geminate like the <t> in Italian <notte>.

Since sounds such as /N/ do not distinguish minimal pairs in most European languages, the convention has been carried over to Esperanto and a letter is not felt to be needed. Sound assimilation is not enough to warrant a new phoneme, especially when /N/ is only a phoneme between compound word boundaries where alternative distinguishing features (such as deliberate glottal stops) exist. Conversely, where common minimal pairs do exist in European languages, Esperanto often reflects them in the spelling system. Indeed, most criticism of Esperanto (Large, Crystal) comes from those who see problems of sound confusion for speakers who do not differentiate phonetic characteristics such as voice. For instance, although they do recognise voice, Dutch speakers have difficulty with <s/z> and <ĵ, ĝ>, Chinese have problems with these and with <t, d> and others. Compare this to Mauritian creole where /i/ replaces the French sound /y/ as in <rue>, causing speakers to overcorrect in French and pronounce written forms such as <stylo> as if it were <stulo> (Chaudenson, 1989). Further examples of related problems are discussed in the section on transliteration below.

The lesson for systems that aim to regularise the sound-symbol relationship in a particular language, is that such correspondences would be compromised by usage outside the system, that is, from the source languages of terminology and from the languages of first speakers. Since Esperanto's original lexicon is derivative, and Esperanto is largely learnt as a second-language, the writing system evidences tensions which often conflict with the principles of:

1 universality (such as the adoption of novel letters such as <ĵ>, or the preference of one symbol over other competing symbols in other systems such as <j>) and
2 absolute phoneticity (as in the existence of certain compromises such as the maintenance of <ŭ>, non-representation of non-European minimal pairs such as transliterated foreign sounds, or sounds occurring within the system such as /n, ŋ/, geminates and glottal stops).

2.5 Transliteration: the problem of external influence

Esperanto has been prone to both linguistic and political tampering. Although no reform of the entire system has taken place, there are several schools of radical reform, some wanting either to rationalise or 'deeuropeanise' the language. Writing about the transliteration of Russian using Esperanto's writing system, Bastien (1950, iii) decides to represent soft endings by an apostrophe <sol'> {salt}, <dremat'> {to snooze}, not to represent the various phonetic values of <e, i, g> in Russian, and to represent the spelling rather than the sounds because of regional variation in pronunciation. Although pronunciation will not be possible from the finished transliteration (the

various pronunciations of <o> and <v> depending on position would be unrepresented), the Russian reader should still be able to read the transliterated text, which was Bastien's purpose in the case of his etymological lexicon.
To give another example of transliteration, the Chinese Esperantist monthly magazine *El popolo ĉinio* {from the People's Republic of China} has been experimenting with an Esperanto version of Pinyin, the standard roman alphabet of China. The Pinyin graphemes <zh, ch, sh, r> are thus transliterated <ĵ, ĉ, ĉ, û> respectively and differentiated from the Pinyin <j, q, x, ü> by <ĝj, ĉj, ŝj, ju> (Lord, 1993). The problem of non-standard forms, and multiplicity of systems available (Old Pinyin, New Pinyin, Esperanto, Hong Kong English...) becomes evident. In one book reviewed by Lord, the author referred to the martial arts term <Qi> whereas the translator did not distinguish between <Qi>,<ĉji> the Esperanto transliteration, and <ĉi> the older transliteration of <Chi> (where <ĉi> means {this-} in Esperanto). Lord also notes that when *El popola ĉinio* started to print Chinese names in standard Pinyin, a French Esperantist wrote to complain of their use of the 'English' alphabet. Similar confusion has been evidenced in the discussion on etymology.

Apart from the neologisms and lexical borrowing discussed earlier, there is particular controversy over whether to transliterate place names and personal names, or whether to leave them in the original orthography. The 'Analiza Skolo' led by Richard Schultz (he writes his name <Rikardo ŝulco>) attempts to eradicate what it calls 'illogical elements' of the language, including using 'foreign' spelling. One of their more colourful reforms is to transliterate all place-names not only by sounds such as <Dojĉlando> instead of <Germanio>, but also by meaning. So 'Porkvadejo' would be 'Schweinfurt' and 'Babil-ŝinko' would mean 'Chatham' (Bermano 1990). In a letter to the editor of *Esperanto* (Feb.1990, pl49) a reader complains of the spelling of <Choutoff> (presumably from the Russian /Ŝutof/) in the obituary column [my translation]:

...Esperanto is a logical language. It has got to have absolutely phonetic spelling. Mr Ŝutov was a Jewish Russian... So one should write his name like this: ŝUTOV. Why did you spell it in French?

Thus according to some Esperantists, a phonetic transliteration into Esperanto is essential. Another letter (Apr. 1990 p81) pleads a slightly different course of action, that a supposedly international language should respect national forms, and even attempt to represent non-roman scripts:

...Respect for other cultures requires respect for their particularities, and writing is one of these. If Esperantists start to do away with these particularities, they're acting like dictators...

In fact many proper nouns were Esperantised before Schultz's proposal, especially for well-known capitals such as <Parizo> {Paris}, for towns where UEA congresses take place <Bergeno, Vieno> and famous people <Ŝekspiro>. The advantage is that there would be standard if not phonetic transliteration of non-roman writing systems and a standard pronunciation. This occurs in the national languages, for example the French <Londres> or Italian <Londra> instead of <London>. Also, transliteration of names and places means that they can take the accusative case and can form regularly derived words <Manĉestrano> {a Mancunian}.

Esperantists such as Bernard Golden (1990) have pointed out that this would mean introducing the same problems for proper nouns already experienced in the common acquisition of international lexis. There are also problems of consistency, such as French <Kebeko> for Québec, but <San-Kvento> for Saint-Quentin. Schultz proposes <ĵeŝovo> for the polish <Rzeszów>, not a true representation of the sounds, and Golden claims that reforms such as <Ĝonzo> for Johnston are 'pidginesque' (p81). Interestingly, Schultz often tries to assimilate the spelling, rather than the pronunciation, as his treatment of French place names with <oi, oa> /wa/ shows: <Loire, Loiro>, <Loisel, Loazelo>, <Poitiers, Pûatjero>, <Blois, Blezo> and <Troyes, Trojezo> (Golden p81). Here

large inconsistencies arise from the intent to represent spelling at the same time as representing sound, a rare combination.

In short, the rationalism of 'phoneticisation', of a system which would create neutral consistent forms, such as Zamenhof's <Johano> (for Johannus, John, Juan, or Jan), has fallen foul of practical needs of definitive and temporary borrowing, and has brought into question the problems of etymological and cultural representation.

3 Conclusion

The lesson for spelling reform from planned languages such as Esperanto has been that the *a priori* lack of prescribed structure enhances the sensitivity of the system to phonetic evolution and to changes in orthographic fashion, leading to a compromise of the internal consistency of the system. For English, which lacks diacritics but has serious problems with vowel representation, the desirability of phoneticisation is questionable. English has the possibility of regularising vowel symbolisation as in the Initial Teaching Alphabet or New Spelling. But a disadvantage is that the new symbols, much as the Esperanto symbol <ĵ>, would be unidentifiable, or <c> unpronounceable to the uninitiated, and the problem would be compounded by the number of vowel nuances the system would be required to make for English. The ITA takes on this problem by using similar characters, but then the problem of typography, the most often cited disadvantage of Esperanto, would spoil the system's selling points. A language designed to have five vowels like Esperanto is easier to represent phonetically than creole or English, and Esperanto has the advantage that its standard pronunciation, while suffering some erosion (the loss of <ĥ>), has stabilised around a writing system with a high degree of phonographic consistency, while in English it has clearly not.

The institutional lesson is that, in the case of Esperanto, a completely consistent system is difficult to maintain if links are to be renewed constantly with other languages, as represented by esperantists' arguments about transliteration and current thinking on integrating Asian and African concepts. In the case of creole, to take an example from the wider field of language planning, it can be shown that even in a limited and easily controlled area, where conditions are conducive to reform, the decision depends on political stability and on overturning the established language.

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5. The Palantype System: another readable shorthand of the English language

Patricia Thomas

Patricia Thomas is a free-lance terminologist and editor of biological journals, currently doing research for her PhD on special language terminology. She learned to Palantype in English, French and German at the college of the Lycée Français de Londres and has used the system at conferences and in multilingual office situations.

PALANTYPE AND MACHINE SHORTHAND

The review on *AgiliWriting* (AW) by Chris Upward (1993/1, pp29-33) explains how an abbreviated, alphabetic shorthand can, if taken down correctly and legibly, be transcribed by anyone else on a computer which has an automatic word processing conversion program to transcribe the text into standard English. The method is reminiscent of a machine shorthand system, *Palantype,* which has been in use for many years, and by which a stenographer - in this case, a Palantypist - takes down speech directly on to a special keyboard; hence the letters start their life in a printed form. The system has in recent years been radically developed with the result that Palantype too can be automatically transcribed into standard English via a word processing package. The Palantype method initially appears to have the advantage of accuracy because the initial input is always in printed form and there is therefore less risk of error than from hastily handwritten abbreviations. However, the advent of the lap-top computer and its use by Agilitypists renders this problem obsolete (Upward, 1993/1, p30). An initial disadvantage of Palantype compared with AW was at the basic level, because the cost of AW can be very low; there can surely be no method cheaper than a pencil and paper! And because it can be handwritten, it is a boon to people who at times work outside, such as journalists. However, now that AW is supported by computer hardware and software development, both systems have become more expensive to operate.

An aid for the hard of hearing

One very important advantage of Palantype is its enormous benefit to deaf people, who were one of the early targets for the renewal of interest in the system. (A trained palantypist sits beside the deaf person who reads the spoken text on a screen almost immediately after the speaker has spoken.) However, this is perhaps not a just comparison to make because the developers of AW may not have wished to explore this avenue.

Accuracy

The main aim of AW and its later forms, AW+ and Agilityping, is to produce a shorthand readable by anyone trained in the method, primarily for office use. The improvements of AW+ over AW are that no word form exceeds five characters and each homophone or near-homophone has a different Agiliform, hence "advice" = ADVS and "advise" = ADVZ; "their" = THYR and "there" = THR. Each AW word form is matched against a dictionary of c.60,000 word forms, with claims of 100% accuracy (Anne Gresham, *1994,* personal communication). The system runs on both IBM and Apple Macintosh.

Palantype input can be simultaneously transcribed into English, the spelling checked against a stored lexicon which was originally in excess of 71,000 inflected English word forms (although most Palantypists now find dictionaries of c.20,000 words sufficient for their needs), and the result displayed on a large screen or VDU. Hard copy can be printed concurrently and the input stored on an IBM-compatible disk (the system runs on PC-DOS or MS-DOS version 3.3 or later). Accuracy against the dictionary match is 90%, the remainder responding to grammar and word structure

rules, resulting in 95% accuracy or greater, while the rest is easily comprehensible.

Speed

The speed of Agilityping is claimed to be around 80-120 words per minute (w.p.m.). This is much the same speed as that reached by most 'conventional' shorthand writers and may be sufficient for most offices but would almost certainly not be high enough for conference and court proceedings. This is where Palantype really scores because speeds of 180-200 w.p.m. are routinely recorded, and the system has been in use by court reporting companies for a number of years, and by the Police when recording interviews.

Fig.1: a pre-electronic Palantype machine in action

HISTORY OF MACHINE SHORTHAND

Readers will no doubt be familiar with the sight, particularly in courtroom scenes shown in American films, of a stenographer sitting in the centre of the courtroom in front of the Bench, with a compact black box on her (occasionally his) lap (Fig.1). A little about the interesting history of machine shorthand, and in particular the Palantype system, will help its versatility to be appreciated.

The first shorthand machine was invented in France by Gonod in 1827, predating typing by 40 years, but it was not until 1910 that the French Grandjean machine was patented. The early systems used dots and dashes similar to Morse code, and this was true of the first British machine, the Stenotyper, used in London around 1900. The first English language version was patented at about the same time in America and called the Stenograph machine, where the one on which today's machines are modelled is that of W.S. Ireland, who developed a 22-key keyboard in 1914.

Development of Palantype 2

Britain, in contrast, used Isaac Pitman's shorthand from 1837 and various forms of this and many others dominated the scene in offices. Machine shorthand was introduced into Britain between the two World Wars by a French teacher and psychologist, Mademoiselle Palanque (from whose name Palantype is derived). The system is based on that of Grandjean and uses mainly Roman alphabetic characters, with one or two additional symbols in the early models. It is thus easier and quicker to learn and to decipher than the purely symbolic form adopted by most shorthands. The general principle of the system is that speech is recorded phonetically syllable by syllable (rather than phoneme by phoneme or letter by letter), giving a highly accurate recording of the language. Ergonomic factors were taken into consideration and the keyboard, which has 29 keys, is designed so that the stenotypist sits in a comfortable position with the hands placed naturally on the keys. This contrasts with the position of sitting at a piano or at most computer keyboards where the hands, when close together, turn outwards slightly from the wrists. Comfort is of course important, in view of current concern about Repetitive Strain Injury.

Research into Computer-Aided Transcription (CAT) of the Palantype system was undertaken by W. L. Price at the National Physical Laboratory (NPL) in 1967 to provide high quality recording of court proceedings. He modified the keyboard slightly to make the output more readily assimilable by the computer. Due to high computing costs, the work was not exploited commercially at the time. However, further research was undertaken in the 1970s at Southampton University, Leicester Polytechnic and the BBC. An undergraduate project was begun in 1974 by Dr. A. F. Newell and his team, which included Dr. A. Downton and Dr. C. Brooks, at the University of Southampton. The

research was supported by the NRDC with the aim of producing a portable system which could be used to provide a simultaneous visual transcript of lectures and meetings as an aid for the post-lingually deaf and hard-of-hearing (Brooks, 1985: 13). A number of experimental systems were used by, among others, the British politician Jack Ashley.

In 1983, Possum Controls Limited licensed the results of the research at Southampton and developed the prototypes into the current advanced CAT systems with, among other improvements, an electronic keyboard (Fig.2). The company has also introduced a more computer-compatible method, known as the PCL (for Possum Controls Limited).

Fig.2: the Palan 2000 keyboard

HOW PALANTYPE WORKS

Syllabic phonetic structure

The most important principle of the Palantype system which enables high speeds of dictation to be realized is its method of recording words phonetically syllable by syllable instead of letter by letter. To effect this, several keys can be depressed at the same time, as with a chord on the piano, instead of having to be depressed one at a time in sequence. The overall saving in the number of keystrokes is shown in the Tables and the corresponding saving in time is not difficult to imagine.

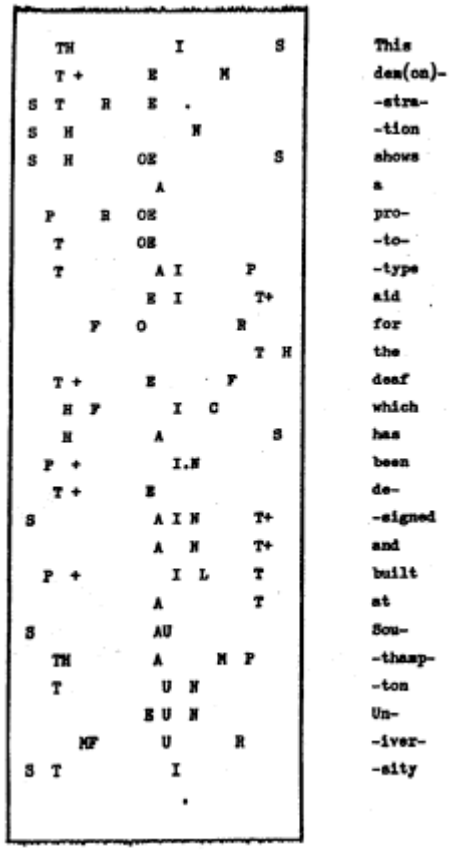

Fig.3: printout from a pre-electronic Palantype machine with syllabic spelling

The keyboard

The 29 keys are displayed in three sets, grouped in the manner of the majority of phonetic syllables in English, i.e. consonant-vowel-consonant. The operator mentally divides words into phonetic syllables, aiming to begin each syllable with a phonetic consonant where possible, including vowel/consonant doublets such as the initial 'y' sound in 'Europe' and 'use'. The early form of Palantype was printed on a paper roll which moved forward automatically after each 'chord' was depressed (Fig.3).

This stage is retained in the current system, the roll or 'band' appearing as justified text on paper behind the screen. This is the version which is usually read back verbatim, as in court cases.

The keyboard prints the letters and symbols in an unvarying left-to-right order, as determined by the phonology of English syllable structure. The letters can only appear in the following sequence, ie syllable-initial S can only precede P, not follow it in any givn sylabl:

SC(K)PTH(D)+MFRNLYOEAUI^NLCMFRPT+(D)SH

The order is the present version as adapted by the National Physical Laboratory from the earlier version (whose different letters are shown in brackets), and as further modified by Possum. The rigidity of this order can on occasions be mildly frustrating, although the operator soon learns to break the word to form a second syllable; for example, it might seem appropriate to write *under*

with one keystroke, UNDR, but this is not possible because the R precedes the /d/-sound (T+) on the right-hand side of the keyboard. Some words can be split in more than one way and here a knowledge and understanding of etymology is useful, because it usually provides the most logical and practical way of breaking a word into syllables, as well as facilitating the 'transliteration' process into traditional English orthography. The current keyboard layout is shown in Figure 4. It will be noted that the long front bars are divided into two sections. These are functionally identical but it is easier to have two smaller keys for electronic purposes, resulting in quieter use.

As English has more than forty phonemes and not all the letters of the alphabet are represented on the Palantype keyboard, a number of conversion principles have been adopted to provide codified forms to fill the phonetic gaps. The following four points are taken from Downton (1982: 19, 21):

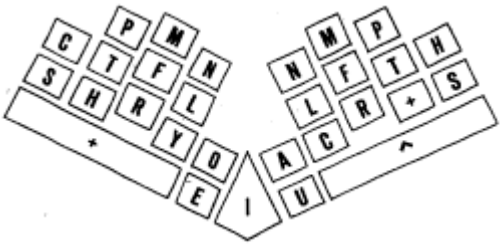

Figure 4. Keyboard layout, PCL Palantype System

1. The '+' key is used to show a voiceless letter is to be read as its voiced equivalent.
For example, P+ = B, C+ = G, T+ = D.

2. Single vowel letters are used to represent the short vowel sounds, as in *mat, met, hit, hot, hut*.

3. The point, signified by an asterisk '*' in this paper, is used in conjunction with a vowel to lengthen the vowel sound. Thus *fit* and *feet* are Palantyped respectively as FIT and FI*T. (The asterisk is represented on the new POSSUM keyboard as ∧.

4. The consonant C by itself always represents the hard value as in *cat*. The soft value in *cell* is represented by S.

N+ stands for 'ng' as in *sing* and +F is V, while MF is /w/ at the beginning of a word and F+ at the end. Additional vowel sounds are represented as follows (Downton, 1982: 20):

OU for the sound of 'oo' in *moot, brute*
OE for the sound 'oh' in *soul, mote*
OI as in *soil, toy*
AI as in *might, height*
AU as in *house, now*.

The letter Y in Palantype can represent either J or Y as the first consonant or vowel of a word.

COMPARISONS WITH CUT SPELLING AND AW

One of the points of common ground with all three systems is to make redundant those letters which are unstressed or silent. It seemed interesting to make a direct comparison, using as a criterion the speed of recording discourse verbatim, as shown in the following table which takes many of the examples from Chris Upward's review article (1993/1, pp30-31). The number of keyboard depressions of AW and Palantype are shown in curved brackets for comparison. The "/" sign in Palantype PCL in the following table distinguishes left- from right-hand depressions of the letters and symbols.

Traditional Orthography	**Abbreviated form (No. of keyboard depressions in brackets)**	
(TO)	*AW*	*Palantype* PCL
CS Rule 1 (letters irrelevant to pronunciation)		
breath	breth (5)	P+RE/TH (1)
debt	det (3)	T+E/T (1)
evolve	evolv (5)	E/+FO/LF (2)
ignore	ignor (5)	/IC+NO/R (2)
money	mony (4)	M/U N/I (2)
perhaps	praps (5)	PR/APS (1)
you	u	E/U (1)
write	wrt (3)	R/AIT (1)
CS Rule 2a (unstressed vowels before <l, m, n, r>)		
abundant	abundnt (?7)	/A P+/UN T+/NT (3)
bundle	bundl (5)	P+/UN T+/L (2)
doctor	doctr (5)	T+O/C ST/R (2)
under	undr (4)	/UN T+/R (2)
upward	upwrd (5)	/UP MF/RT+ (2)
cultural	cultrl (6)	C/UL TR/L (2)
CS Rule 2b (vowels in certain suffixes)		
-ed (past participle)	-d (1)	/T+ (1)
-ing	-g (1)	/IN+ (1)
singing (neither G pronounced as such)	sgg (3)	S/IN+ /IN+ (2)
CS Rule 3 (doubled consonants simplified)		
clock	cloc (4)	CLO/C (1)
answer	ansr (4)	/A∧N (or /AN) S/R (2)
battle	batl (4)	P+/A TL/ (2)

Table 1. AW spelling and Palantype keyboard depressions

Special uses of U

The vowel/consonant doublets W, Y have already been commented on, and in Palantype these would be recorded strictly phonetically. However, U might produce some homophonic anomalies; for example, would a native of Norfolk confuse *muse* (ME/US) and *moose* (MO/US)? (The /s, z/ sounds were both represented by S in Palantype, although I understand that /+S can now denote /z/.) Other examples are *pull* = PO/UL and *pool* = PO/U∧L; *stewed prunes* would be STE/UT+ PRO/UNS. Similarly, with near homophones, presumably AW would differentiate between *ruin* (ROU/IN) and *rune* (ROUN), since 100% accuracy is claimed. Of course, a commonsense appraisal of the context in which the word appears should clarify any semantic problems. A second table shows some further examples of special uses:

Traditional Orthography	**Abbreviated form (No. of keyboard depressions in brackets)**	
(TO)	*AW*	*Palantype PCL*
CS Rule 1 (letters irrelevant to pronunciation)		
Europe	?yrp (3)	E/URP (1) or E/U RO/P (2)
European	?yrpyn (5)	E/UR PE∧/AN (2)

(PIAN is not possible in Palantype because I is the last

vowel to be printed, although its position is in the centre of the keyboard and it appears to lie before A and U.)

jovial	jovyl (5)	+JO/E +FY/AL (2)
medium	medym (5)	M/I∧ T+Y/UM (2)
onion	onyn (4)	/U NY/UN (2)
union	? wnyn (4)	E/U NY/UN (2)
fluent	flwnt (5)	FLO/U∧NT (1)

Table 2. Representations of the U *sound*

TRAINING AND THE FUTURE

Manchester College of Arts and Technology, in conjunction with Possum Controls Limited (Palantype Division), offers a diploma training course in verbatim reporting for which a minimum of 5 GCSEs at Grade C or above, including English language, is required. Distance-learning courses are also available by hiring a complete package from Possum Controls Limited. It is hoped that versions in other European languages will be developed shortly.

CONCLUSIONS

It appears that in comparing the two systems, AW and Palantype, we are looking at systems which have two different objectives, but which nevertheless have a considerable amount of overlap in their application. Palantype is undeniably faster and is therefore ideal for reporting the proceedings of meetings. It is more sophisticated and has had an important side development for deaf people. Furthermore, its applicability to other European languages makes it a particularly valuable resource in our current multilingual environment. AW, although slower, is ideal for use 'in the field'. It is not known whether it could be adapted to multilingual use, but similar systems may have been devised for other languages.

Footnotes

[1] I owe most of the historical detail to Palantype, a division of Possum Controls Limited, from material kindly provided by Dr Colin Brooks, Possum's Associate Research Director.

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Fig.1 Working position of early Palantype machine: acknowledgement to Catherine Benjamin and Photographic Services at Aston University, Birmingham, for the photograph.

Fig.2 Current Palan 2000, reproduced by permission of Possum Controls Ltd.

Fig.3 Early printed Palantype format, from Brooks (1985), p12.

Fig.4 Current Palantype keyboard layout, reproduced by permission of Brooks (1985: 10).

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6. Err Analysis: som reflections on aims, methods, limitations and importnce, with a furthr demnstration. Part 1.

Christopher Upward

This articl in ritn in Cut Spelng (CS).

0 Introduction

A numbr of factrs hav motivated this furthr exrcise in anlyzng english spelng errs. One factr is a degree of disatisfaction with som previus atemts. Anothr is th desire to set out som of th limitations and complications that such analysis entails. A third is th hope that fresh evidnce may emerj on th dificltis of english spelng, wich may be useful to spelng reformrs. And a fourth is th wish to explor som of th implications of Valerie Yules ke precept that spelng desyn needs to reflect human *needs and abilitis*, rathr than necesrly som a priori linguistic principl like one-to-one sound-symbl corespondnce.

1 Som previus analyses

1.1 Wing & Baddeley (1980). Altho varius exrcises in mispelng analysis had been publishd in previus decades, Wing & Baddeley [1] had th distinction of probbly being th first to include a substantial err-corpus as an appendix to ther analysis (tho they aknolej Bawden, 1900, as a minor precursr). This means that othr reserchrs can reanlyz and use ther orijnl data wich, it wil be sujestd in this articl, represents th lastng valu of ther work. Certnly they presentd ther findngs in th expectation that subsequent analyses wud improve on ther methodolojy. If it seems worth hylytng ther main shortcomngs now, it is partly because ther work is so ofn cited uncriticly in th litratur, and partly in ordr to demnstrate th need for a clear defnition of aims and a clear vew of th overal context of such analyses.

Wing & Baddeley aproach ther task as experimentl sycolojists, but like al too many reserchrs from that bakground, they pay litl atention to th linguistic dimension of ther material (ther sole refrnce to it, on pp261-62, is th pasng remark that som errs may arise from "difficulties associated with rules for adding suffixes".) Ther study, like many othrs, seems to be based on th asumtion that by anlyzng mispelngs in english it is posbl to arive at conclusions about th sycolojy of litracy in jenrl. It is importnt to emfasize th falacy of this asumtion: mispelngs in english chiefly sho th human mind struglng with a uniqely eratic riting systm, and for that very reasn they canot be used as evidnce for th sycolojy of norml alfabetic litracy. To do so is rathr like basing a sycolojy of mathmatics on how peple wud do arithmeticl calculations using roman numerals.

It is a symtm of ther neglect of th linguistic dimension that Wing & Baddeley divide ther corpus of errs into two categris, wich they cal Typ 1 (consistng of 847 'slips') and Typ 2 (consistng of 229 'convention errs'), and concentrate ther analysis entirely on Typ 1. But if th study has lastng valu, it is surely to be found in th listng of Typ 2 errs, wich ar a classic compendium of th dificltis with wich th english riting systm confronts even hyly educated users. Useful tho it wud be, we canot here anlyz them in ful; but we may at least note that 17 of th first 20 Typ 2 errs listd relate directly or indirectly to th CS redundncy categris (irelevnt letrs, shwa, dubld consnnts), and that two othrs involv confusion over th letr C.

It is th Typ 1 errs that intrest Wing & Baddeley, and they categrize them in terms of 4 mecnistic, non-explanatry criteria, acordng to wethr they involv omission, adition, substitution or inversion of letrs. They confess that it is not always esy to distinguish Typ 1 from Typ 2 errs. Wen one examns th Typ 1 errs, it is imediatly aparent that ther is a lot mor to many of them than can be explaind away as mere 'slips'. Th very first err ilustrates th problm: th riter wantd to spel *intellect*, but began

with th letrs *intele…*; howevr, because th word was then respelt corectly, th err was classifyd as a Typ 1 'slip' and not as a Typ 2 'convention err'. Yet it is clear that th err arose over precisely that featur of th form *intellect* wich is hardst to spel from nolej of th pronunciation. In othr words, th err was not, as Wing & Baddeleys discussion implys, a randm slip in th cognitiv procesng of a particulr string of letrs that myt equaly hav ocurd elsewher in th same word, or in a difrnt word, or in a difrnt languaj. On th contry, th riter stumbld (tho without finaly falng, in this instnce) over that classic dificlty of english spelng: th unpredictbility of consnnt dublng.

On chekng th ful Typ 1 list, we find that of th 847 so-cald 'slips', as many as 341 (40%) ar atributebl to that same cause, ie linguistic dificltis. If we ad this figur to th 229 Typ 2 errs, we get 570 'convention errs'; and if we deduct it from th Typ 1 total of 847, we end up with only 506 'slips'. Thus 53%, rathr than th orijnl 21%, of th total corpus cud mor apropriatly be clasd as 'convention errs'. This finding itself implys that th chief purpos of mispelng analysis in english shud be to identify th dificltis of th systm, rathr than particulr patrns of cognitiv procesng.

Of th 506 remainng 'slips', it was noticebl that many wer of th typ *an* for *and* or *the* for *they*; and that many mor cud be atributed to a hypercriticl interpretation by th scrutineer of th riters handriting (to list *reccgnise* for exampl as a mispelng of *recognise* seems absurdly harsh, wen th falt cud lie with an intruption in th flo of ink to th riters pen!). Th presnt authr has over th years incresingly inclined to th vew that 'ther is no such thing as a spelng slip' (ie al mispelngs ar somhow or othr linguisticly motivated), and, watevr exeptions may be found, he feels this vew is to a significnt extent confirmd by th Typ 1 listng. Indeed th question inevitbly arises wethr th Typ 1 corpus is substantial enuf to sustain th kind of analysis Wing & Baddeley subject it to at al.

It furthr emerjs that th authrs cognitiv findngs ar exeedngly tentativ and tenuus anyway, and ar partly undrmined by ther own methodolojy. Ther initial hypothesis is that errs ocur mor toward th end of words than erlir on, because riting involvs transferng th imaj of th letr sequence of each word into a memry 'bufr', but as th letrs ar successivly ritn down, th imaj decays rapidly. Thus th recal of letrs that ocur late in th spelng of a word is weaknd, leving them especialy prone to err. Howevr, wen countng errs, th authrs only include th first err in any word, wich has th autmatic consequence of elimnating som errs found toward th end of words. Th authrs wer not surprisingly disapointd that th tendncy to late errs was not very markd, and they respondd by preferng an alternativ hypothesis: that th midl of words is mor prone to err because of 'intrference' between ajacent letrs. A linguistic aproach by contrast wud point out that th ends of english words ar ofn caractrized by certn kinds of fonografic ambiguity, and that errs in that position ar th natrl consequence.

That linguistic factrs, to do with th unpredictbility of sound-symbl corespondnces in english, myt be overwelmngly mor powrful than any such cognitiv processes in determnng err-ocurences, was not considrd. This oversyt is al th mor stranje because th authrs seem to accept in ther introduction (p252) that "writing depends heavily on the word-to-phoneme conversion process"; but ther primary concern, as they then state, was "the involvement of short-term memory in handwriting".

Anothr limitation on th validity of ther findngs, wich they do not aknolej as such, is th fact that al ther 40 riters wer aplyng for places to study sience at Cambrij University; in othr words, they constituted a hyly selectd educationl élite of yung, predomnntly male adults. Elsewher th authrs remark that "error rates in normal people are very low", but they leve unclear wethr they regard ther riters as 'norml peple'.

In short, not merely did th Wing & Baddeley analysis entail inherent methodolojicl defects, but they took no acount of linguistic and socio-educationl factrs wich necesrly hav a fundmentl impact on th significnce of ther data.

It shud be add that th book in wich th Wing & Baddeley study apeard also contains th foloing chaptrs wich impinj on th area of mispelng analysis: Gillian Cohen 'Reading and Searching for Spelling Errors' (pp135-157); Norman Hotopf 'Slips of the Pen' (pp287-307); Hazel E Nelson 'Analysis of Spelling Errors in Normal and Dyslexic Children' (pp475-493). Because these hav not acheved th same reputation in th litratur, they ar not considrd in detail here. Sufice it to say that Cohen is concernd with spotng errs, not with ther causes; Hotopf says his purpos "is to compare slips of the pen with those of the tongue"; and Nelson is intrestd in th diagnostic aplications of mispelng analysis for dyslexics.

In this paper, by contrast, we ar primarily intrestd in wat mispelngs tel us about th riting systm rathr than about th riter.

1.2 Th *Journal of the Simplified Spelling Society* (1987/3) publishd a thre-part analysis entitled 'Can Cut Spelng Cut Mispelng?' [2]
Th thre parts related to

1) a smal corpus of som 50 undrgraduat mispelngs,
2) 444 mispelngs found in 9-year-old Daisy Ashfords late 19th century story *The Young Visiters*, and
3) 1,377 errs found in riting by 163 15-year-olds.

Th corpus for th presnt study (se belo) paralels that used for that third part. Th purpos of th 1987 study was specificly to establish how far th errs found myt hav been preventd if th riters had used CS. Th report did not atemt to adress wider issus, and neglectd to colect data that myt hav been of wider intrest. It did howevr refer to som othr studis, such as mispelngs made in ritn english by non-nativ speakrs in Uganda [3] and Singapor, [4] and to Roger Mitton's corpra lojd with th Oxford Text Archive [5].

1.3 Th National Foundation for Educational Research (NFER, 1993) [6] analysis was recently revewd in th *Journal of the Simplified Spelling Society.* [7] Th revew pointd out that altho th data and ther close analysis wer sound and valubl, som importnt overal statisticl conclusions regardng jenrl standrds of spelng acuracy wer less soundly based. In particulr, th text sampls used for th corpus wer standrdized by th numbr of handritn lines (10) and not by th numbr of words ritn. This not merely ment that a riter with smal handriting wud be rated as less acurat than an equaly good riter with larj handriting, but it ment that no abslute mesur of acuracy was posbl in terms of th proportion of words corectly and incorectly spelt. Th presnt study, tho its corpus is only about one tenth of th size of th NFER corpus, is desynd to avoid those falts.

Altho th NFER employd 4 non-explanatry categris of mispelng like Wing & Baddeley (calng them *insertion, omission, substitution, transposition*, insted of *adition, omission, substitution, inversion*), it also used wat it cald 'minor error categories' (*homofones, real words, effects of pronunciation, doubled letters, silent letters, 'magic' e, schwa vowels, transposition of i and e*). These hav th importnt potential to explain wy errs ocurd, tho th NFER did not exploit them for that purpos.

2 Th Presnt Study: jenrl findngs

Th presnt study represents a smalr-scale but methodlojicly mor rigrus replication of th third analysis in th abov-mentiond 1987 report. Th corpus in both cases was derived from ansrs to questionairs containng 10 unfinishd sentnces wich wer completed by th respondnts. Th material was kindly made availbl for mispelng analysis by Cyril Simmons of Loughborough University, ho desynd th questionair and subsequently aplyd it (variusly translated into french, jermn, arabic, japnese) in a comparativ intrnationl study of yung peples atitudes. [8] Th 10 unfinishd sentnces wer as folos:

1) The sort of person I would most like to be like…,
2) The sort of person I would least like to be like…,
3) The people I am happiest with are…,
4) The people I am unhappiest with are…,
5) When I am by myself I…,
6) What matters to me more than anything else…,
7) The best thing that could happen to me…,
8) The worst thing that could happen to me…,
9) The best thing about life is…,
10) The worst thing about life is….

Th questionairs wer completed anonmusly and th respondnts wer asured that ther replys wud remain confidential and constituted no kind of test. Th respondnts thus did not no that th quality of ther riting was to be examnd in any way, and wer therfor undr no pressur to rite lejbly, gramaticly, or coherently. Th subject matr concernd th students persnl feelngs, ther relations with famly, frends and othrs, ther intrests, and ther hopes and fears. Th vocablry they used therfor typicly covrd a very limitd ranje of discorse, was spontaneusly chosen and ofn coloquial, and hevily repetitius. These conditions may seem ideal for elicitng th students most 'natrl' spelng; but th results may also sho a loer levl of acuracy than th students cud hav produced in mor forml conditions. Furthrmor, if mispelng analysis is to serv as a jenrl tool for th desyn of spelng reform, it wud need to covr much wider areas of discorse, including th languaj of al th main scool subjects, and thus also covr th spelng of sientific and tecnolojicl termnolojy.

Th 1987 analysis drew on 163 questionairs, completed in 1981, by mainly 15-year-olds at a larj-city comprehensiv scool in th english East Midlands rejon. Th presnt analysis, carrid out in 1994, used identicl questionairs completed 10 years later, in 1991, by 73 mainly 15-year-old students (6 had not quite turnd 15, and 1 was 16) at a smal-town comprehensiv scool in th same rejon. In both cases, th questionairs wer completed by a ful year-group, covrng th hole ability ranje representd at th scools in question.

A total of 1,377 errs wer classifyd in th 1987 study, but in th presnt study only 357 wer identifyd. Thus each respondnt in th erlir study avrajd over 8 riting errs, wile in th presnt study th mean was just undr 5. No reasns for th incresed acuracy wer aparent, but factrs may include any or al of th foloing: educationly mor advantajd home bakgrounds; a mor favorabl scool environmnt; superir jenrl educationl experience from improved curicula or betr teachng; gretr emfasis givn to acurat spelng during scoolng; betr visul memry for spelngs; fewr words ritn in th respondnts ansrs. Th betr 1991 scors canot of corse be taken to imply that standrds of teenajers spelng rose jenrly during th previus decade. Th relativ scors of th 1981 and 1991 riters ar howevr only incidentl to this study: it is th natur of th errs, rathr than ther total numbr, that is of prime concern.

Nevrthless certn statistics concernng overal acuracy ar worth noting. Male respondnts in th secnd study outnumbrd females by 43 to 30, but since th female respondnts rote a mean of 157 words compared with only 89 ritn by th males, significntly mor words ritn by females wer scand for errs than by males (4700 compared with 3828). Th male respondnts made 169 errs altogethr, and th females 188; but wen related to th numbr of words ritn, this shos a rathr hyr levl of acuracy in females: th males made one err per 23 words ritn, wheras th females made only one per 25 words ritn. (Th NFER study found a much mor markd superiority of female riters per 10 lines of riting, but overlookd th posbility of larjr female handriting afectng th result.) In th presnt study, repeatd errs wer countd each time, and words mispelt in mor than one respect likewise countd for mor than one err (eg *sosity* for *society* countd as 2 errs).

Not evry err in th presnt study representd a 'mispelng' in th strict sense. Th total included a handful involvng othr ritng errs, such as rong word choice, and ther wer 140 orthografic errs wich did not involv th rong aplication of letrs as such (these may be cald 'metaorthografic' errs). Mispelngs in th sense of misused (substituted, insertd, misplaced, or omitd) letrs totald 208. Thre categris of metaorthografic err wer noted. Th larjst numbr (53) concernd capitlization, most using capitl letrs inapropriatly, but a few failng to use them wen required (eg *european*). Anothr categry of

metaorthograficl errs involvd unconventionl word divisions (44 errs); many of these wer singl words of th typ *someone*, *everywhere* ritn divided as *some one*, *every where*, but th noun frase *a lot* was ritn 21 times as a singl word (*alot*). Almost as many errs (43) involvd use of th apostrofe, with thre rufly equal categris:

1) omission (*peoples*, *its* for *people's*, *it's*),
2) with non-posessiv inflections (*happen's*, *injustis's*),
3) in *-n't* contractions, with th apostrofe eithr omitd (*arent*, *wouldnt*), or placed befor th N (*are'nt*, *would'nt*).

Mispelngs involvng letrs also fel into thre categris. Most numerus wer mispelngs of vowl sounds (110), folod by mispelngs of consnnt sounds (88); mispelngs of silent letrs wer less comn (15).

3 Mispelt vowls

About 60 of th 110 mispelt vowl sounds involvd long vowls and/or two vowl letrs, with mostly th rong pair of letrs chosen, or th pair ritn in th rong ordr, but somtimes with one letr ritn for two or vice versa. Mispelngs of th unstresd 'obscure' vowl shwa acountd for over 30 vowl errs.

3.1 Long vowl and two-letr mispelngs can be categrized by sound and spelng patrn as folos: /ei/ in *raisist* (=racist), *waist* (=waste), *the* (=they), and simlrly with foloing R in *billionare*, *there* (4 =their, 1 =they're), *unfare*.

/i:/ in *acheive* (2), *corea* (=career), *fellings* (=feelings), *meat* (=meet), *peice*, *resonable*, *wierd*, simlrly /i/ in unstresd, mostly final sylabls, as in *babys*, *bitchey*, *constantley*, *enemys*, *happyness*, *humanites*, *marride*, *showey*, *stupied*, *worring* (=worrying).

/ai/ in *Brain* (=Brian), *buy* (2, =by), *deiying/ dieying/dieing* (2, =dying), *kaliedoscope*, *liabary* (=library), *me* (2, =my), *paralized*, *sosity* (=society).

Othr notebl confusions ocurd as in *addition* (=audition), *afull* (=awful), *aloud* (=allowed), *babon* (=baboon), *crewl* (=cruel), *dosen't* (=doesn't), *inturperet* (=interpret), *lonley* (=lonely), *meny*, *thoght*, *wepans*, and repeatdly in *freind* (15) and *frend* (3), compared with 83 ocurences of th corect form *friend*. Al these vowl errs wer in varying degrees atributebl to th lak of straitforwrd sound-symbl corespondnces in english. Very few vowl errs apeard unmotivated; but such wer *en* (=in) and *personlity*, wile *luv* myt be explaind or excused as a wilful coloquialism.

3.2 Mispelt or omitd shwa ocurd most ofn in post-accentul position, thus in final unstresd sylabls in *acter*, *closists* (=closest), *consios* (=conscious), *favourate*, *independant*, *intelligant*, *listern* (2, =listen), *politicion*, *Sharan*, *sponcerd* (=sponsored), *wepans* (=weapons), and in medial unstresd sylabls in *alcaholic/alcholic*, *crimenals*, *diffrent*, *famly*, *intelegent/intellegent*, *intrested/ intrests*, *jewellry* (contrast americn *jewelry*, british *jewellery*), *knowladgeable*, *misrable*, *orphaniges*, *prejidice*, *proberly* (=probably). Th mispelling *catorgery* for *category* shows this err twice. Shwa cud ocasionly also be mispelt in initial sylabls, as in *corea* (=career), *Farari* (=Ferrari), *sucure* (=secure). Th virtul silence of a vestijl shwa in forms like TO *diff**e**rent*, *int**e**rest* may then also sujest to riters that simlr vestijl shwas lurk unsuspectd in othr comprbl environmnts, as between a consnnt and R; this wud explain th intrusiv e in th form *inturp**e**ret*.

4 Mispelt consnnts

By far th gretst dificlty experienced by riters with consnnts concerns wethr they shud be ritn dubl or singl. Th presnt corpus containd th foloing instnces of faild dublng: F in *of* (=off), G in *drugie* (=druggie), L in *academicaly*, *aloud* (=allowed), *intelegent*, *equaly*, *polution*, *realy*, *tele* (=telly), M in *imature*, N in *anoy*, *billionare*, *questionaire*, P in *apreciate*, *droping*, R in *aray*, *embarassing*, *Farari*,

tommrow (=tomorrow), S in *posible*, *proffesional*. Conversly, false dublng was seen as with: D in *saddness*, F in *off* (=of), *proffession/proffessional/proffesional/proffetional*, L in *allone*, *allready*, *allways*, *helpfull*, M in *tommorrow*, *tommrow*, P in *appart*.

Also quite widespred wer errs asociated with th overlapng uses of th letrs Q, K, C, S, T, X, Z. Th foloing instnces wer found: *check* (norml americn for british 'cheque'), *thik*, *sponcerd* (=sponsored), *consios* (=conscious), *critisise* (2), *injustis's*, *sosity* (=society), *practice* (acceptbl americn for british 'practise'), *sucess/sucessful/ succsessful*, *raisist/rasiste* (=racist), *proffetional*, *sexsist*. Probbly asociated with this jenrl area of confusion, tho strictly speakng unmotivated vowl errs, wer th forms *Leicster* (=Leicester), *muscian* (=musician). Th repeatd ocurence of th abreviation *ect* (=etc) may also be seen in th same context, riters being unclear wethr th abreviation shud retain th capitlized letrs in *EtCeTera* or in *ETCetera*?

Most othr consnnt errs apeard th result of poor articulation or inadequat fonemic/gramaticl analysis, as in th forms *ashma* (=asthma), *brillant*, *decen* (=+t), *involve* (=+d), *tamp* (=tramp), *understand* (=+s), *vanblue* (=vandal). Simplification of consnnt strings, as in *decen* for *decent*, is a comn featur of non-nativ riting (and speakng) wen th riters mothr tong dos not use such strings, and ther ocurence in th presnt corpus may be a syn of non-nativ-speakng bakground. Alternativly, it may reflect orthografic imaturity, as such simplifications also caractrize th spelng of th yungst riters. In a few instnces, th orijn of this group of errs lay clearly or probbly with th vagaris of english spelng, as in *coulndn't*, *talbe* (=table), *were* (=where).

5 Silent letrs

Silent letrs enjoy particulr notoriety in ritn english, and sure enuf they produced a modest crop of errs in this corpus. Predomnnt among them was silent E, wich was somtimes omitd, as in *aloud* (=allowed), *sponcerd* (=sponsored), *unfortunatly*, *your* (=you're), and somtimes insertd, as in *behinde*, *moveing*, *pouche*, *rasiste* (=racist), *whose* (=who's). Th word *else* was twice mispelt with a medial E (*eles*, *elese*), in a manr stranjely remnisnt of its Midl English form *elles*. An isolated case, but striking in its own ryt, was th form *nowing* (=knowing). For non-rotic speakrs (ie english speakrs ho only pronounce R befor a vowl), as our questionair respondnts wil like th majority of th english mostly hav been, th letr R is a constnt sorce of uncertnty; thus we se it omitd in *corea* (=career), but insertd in *proberly* (=probably).

Footnotes

[1] Wing, A M & Baddeley, A D (1980) 'Spelling errors in handwriting: a corpus and distributional analysis' in Frith, U (ed.) *Cognitive Processes in Spelling*, London: Academic Press.

[2] Upward, Christopher (1987) 'Can Cut Speling Cut Mispeling' in *Journal of the Simplified Spelling Society*, 1987/3, pp21-24.

[3] Abbott, Elizabeth M (1976) *Spelling Errors in Ugandan English: their Patterns, Possible Causes and Suggested Implications for Teaching*, Thesis submitted for the degree of MEd at the University of Manchester.

[4] Brown, Adam (1988) 'A Singaporean Corpus of Misspellings: Analysis and Implications' in *Journal of the Simplified Spelling Society*, 1988/3, pp10.

[5] Text Archive of the Oxford University Computing Service, 13 Banbury Road, Oxford OX2 6NN.

[6] Brooks, Greg; Gorman, Tom; Kendall, Lesley (1993) *Spelling it out: the spelling abilities of 11- and 15-year-olds*, Slough: National Foundation for Educational Research.

[7] Upward, Christopher (1993) '"Quite good" or "totaly unacceptbl"?' in *Journal of the Simplified Spelling Society*, 1993/2, pp9-11.

[8] Th results of th english part of th 1981 survey wer presentd in: Simmons, Cyril & Wade, Winnie (1984) *I like to say what I think,* London: Kogan Page.

[Journal of the Simplified Spelling Society, 16, 1994-1 pp33-36 in the printed version]

7. Cut Spelling: a handbook to the simplification of written English by the omission of redundant letters.

by Christopher Upward (1992), with Paul Fletcher, Jean Hutchins and Chris Jolly, the Simplified Spelling Society, Birmingham. 301 pp. ISBN O-9506391-3-3.

Alice Coleman reviews

Alice Coleman, Emeritus Professor of Geography at King's College, University of London, has long had a special interest in writing, especially graphology, and literacy., through her membership of the UK i.t.a. Federation committee.

Background

A great advantage that has helped spoken English to become the prime international language of today is its flexibility. There have been no brakes impeding the simplification of grammar, the absorption of neologisms and foreign words, and the evolution of accent; the last may account for Britons' encouragement of non-native speakers by their willingness to understand broken English.

In many ways, the written language has kept pace, but in one respect it has remained rigidly ulra-conservative: its spelling. As long as four centuries ago the disparity between sound and symbol had become striking enough for proposals of spelling reform to begin, but though there have been many such over the years, none has succeeded. A golden opportunity was lost with the introduction of the dictionary, as lexicographers were more concerned to preserve differences reflecting diverse etymological origins than to unify in a spirit of forward-looking pragmatism. Only Noah Webster, in the USA, was able to introduce a degree of logical reform, but even this was quite minor in relation to what was needed. In general, dictionaries have fossilized the problems, and in some cases worsened them by adding complications based on bogus etymology.

In the present century the Simplified Spelling Society has presented a more organized but equally unavailing attempt at a logical solution, and George Bernard Shaw left a bequest to finance a competition for the best modern version. His wish was foiled, and the issue relapsed into oblivion when the entry selected as a winner was so different from traditional orthography that its adoption would have invalidated all previous printed works and everyone's hard-won reading and writing ability. It would have created infinitely more problems than the Society's simplified spelling, which could be fairly easily deciphered by intelligent adults, and was recognised by the open-minded as a practical advance.

Origin and Development

In the 1970s the Australian psychologist Valerie Yule suggested the far less drastic reform of merely cutting out redundant letters, the implications of which were exlored in more detail by Christopher Upward in the l980s. He identified three categories of letter redundancy and also showed that certain unsounded letters could not be cut because they play a vital role in modifying the sounds of neighhbouring letters. Others could justifiably be cut but would need some change to what was left. This was termed a substitution, and the addition of two other substitution-abbreviations produced the overall Cut Spelling system presented in this book.

Each of the three redundancy cuts and the three substitution types were exhaustively tested on a total of 60,000 words, with the help of observations and comments from educationalists, psychologists, linguists, lexcographers, editors, writers, publishers, printers and others in a range of English-speaking and foreign language countries. Many aspects of written language were explored, and the results seemed so promising that, in 1988, the Simplified Spelling Society

established a Working Group, chaired by Christopher Upward, with Paul Fletcher, Jean Hutchins and Chris Jolly, to prepare a learners' guide. The outcome is this three-part Handbook.

Parts III and II

It is convenient to discuss the three parts in reverse order. Part III is a dictionary consisting of 10,000 head-words together with some of their inflections Neither head-words nor inflections are included if they involve no cuts except in a few cases where it is thought people might be tempted to make cuts that do not fit the system. Other omissions are hyphenated words and most proper nouns, as it is thought people and communities should be left to make decisions about their own names in the wake of cuts in the general language. Just a few proper nouns are cited in illustration of the possibilities.

Part II is for the practical thinker who wants to get to grips with the cut system and its use, with a minimum of background information. There is a simple, three-page outline of the principles, followed by three sets of exemplifying material, each of which has two columns, matching traditional orthography with its counterpart in Cut Spelling. The first set is extremely impressive as it takes each spelling in turn, and shows how a relevant set of words can be regularized by omitting one or more letters. Each group is accompanied by one of the words that already obey the rule, and one or more others that have the same vowel digraph as the cut set, but are not treated in the same way because their sounds are different. The sets are arranged in alphabetical order of the redundant letters, and it is a revelation that the only letters not used unnecessarily in some context or other are J, O, and V. Even Q has a redundant U to lose.

The second set of lists in Part II are intended as exercises for Cut Spelling learners. The words are arranged in a mixed order for self-testing, with a gradual progression from simple cases, such as *kneel* = *neel* to the most complex such as *acknowledge* = *aknolej*. The third set consists of three extracts from journals or newspapers, with translations into Cut Spelling, to demonstrate the order of saving in the number of letters needed, and also the overall intelligibility retained.

Part 1

Part I is the fundamental explanation and consists of six deeply delving chapters, which make fascinating reading for the abstract thinker. It is full of interesting sidelights that reveal the breadth and depth of the background research, and it advances in small argued steps that interlock in multiple complex ways to produce a strong overall structure. It is a work of dedication, discipline and sheer concentrated industry.

It must have been more difficult, in many ways, than devising a total reform, for whereas the latter could pursue each change to its logical conclusion, Cut Spelling is constantly constrained by the criterion of making the end-product reassuringly like traditional orthography. This aim is not only to make acceptance easier, but also to facilitate forwards compatibility for current literates who want to embrace Cut Spelling, as well as backwards compatibility for people learning Cut Spelling initially, so that they are not debarred from the written works of past and present. There must have been many times when a Working Group so knowledgeable about simplified spelling as a whole, had their hearts cry out for just one more small inch of change to gain a rule of regularization, but they steeled themselves to their true objective, and accepted a degree of imperfection now, in the hope of winning the lesser battle and living to fight a further stage later.

The remaining imperfections are, in any case, vastly fewer than those in the traditional orthography, and the benefits inherent in Cut Spelling are multiple. First it is quicker to write, not only on account of fewer letters, but also because there are fewer occasions requiring a pause to consider which alternative spelling to use. There are 600 homophones in English, and some 500 are retained with their different meanings, eg *vain*, *vane* and *vein*, but 100 including the most

troublesome ones, are merged. For example, *there* and *their* both become *ther*. The smaller possibility of error promotes greater self-confidence in the user, while the lesser need to wrestle with the mechanics of literacy allows more time for other aspects of education, which can potentially raise standards.

There is no need to fear that the linguistic history inherent in our words will be lost. On the contrary, it will become clearer, as some of the redundant letters to be removed were originally inserted, quite artificially, on the basis of mistaken etymology. Both their going and certain other features of Cut Spelling will help to make pronunciation easier, while still leaving provision for regional and national accents to differ. Furthermore, some of the unnecessary differences between English and other European languages will be eliminated, eg the double <d> in *address* will be replaced by a single <d> as in the French. This will obviate some of the pitfalls encountered when English people learn foreign tongues and foreigners learn English.

The shorter script of Cut Spelling would be financially economical as professional lettering and typesetting will be quicker and cheaper. This leads on to greater environmental friendliness, as there is less use of paper, less energy needed to manufacture and transport it and less space taken up for storage.

How does Cut Spelling achieve all these benefits? Through three very systematic rules and three simple substitutions. The first substitution is the replacement of <ph> by <f> wherever the sound is appropriate. This has been the practice in Spanish and Italian and is already somewhat familiar in Britain because of adverts and tradenames using words such as *foto* and *fone*.

A second substitution replaces soft <g>, <dg> and <dj> by a simple <j>, leaving <g> to fulfil the hard /g/ role as in *egg*.

The other one begins with the removal of the unvoiced <gh>. which causes so much trouble to young spellers. In some words, such as *freight* or *fraught*, the residual form, *freit* or *fraut*, is acceptable but this is not the case with the long I sound (/aÈ/). *Sight* reduced to *sit* is at once confused with the short I (/È/), and the same is true by the removal of the bogus <g> in *sign* producing *sin*. The substitution advocated here is to replace the short I by Y, which almost always carries a long sound in the middle or the end of a word, eg *fly* would be paralelled by *flyt*.

Rules

The three rules are more complex than the three substitutions. Rule 1, excision of silent letters seems simple enough, until one works through the alphabet and finds that most of them are silent in some part of the written language, eg <a> in *ease*, *breathe*; <b> in *lamb*, *dumb*; <c> in *science*, *acquit*; <d> in *judge*, *handkerchief*, *Wednesday*; and so on. A further complication is that not all silent letters are redundant. It is well known that a final <e> makes the preceding vowel long, as also does a following <i>, and the same is sometimes true of other letters, eg the <b> in *climb*, or <w> in *own*, *sown*, which cannot be cut as the words would be indistinguishable from *on* and *son*. Despite such exceptions, however, the amount of cutting made possible by Rule 1 is very considerable.

Rule 2 looks at the sounds of <er> as in *her* and <u> as in *bull*, when they occur in unstressed positions, especially in last syllables but also in mid-word. These sounds, as in *ritual* (spelt with <a>), or *invisible* (spelt with a displaced <e>), are the commonest in the English language and the former, at least, is often referred to by the Hebrew term ‘schwa’. Christopher Upward uses ‘schwa’ to cover both. He points out that they normally occur before <l>, <m>, <n> and <r>, and the wide and inconsistent range of vowels that represent them can safely be eliminated altogether, leaving the consonant to carry the sound. Thus, *principle* and *principal* both become *principl*; *venom* and

ransom become *venm* and *ransm*; *abandon* and *dependent/dependant* become *abandn* and *dependnt*; and *centre* or *center* both become *centr* (eliminating a UK/USA difference). As an example of schwa excision in mid-word, *opera* is cut to *opra*. This rule cuts out a great many letters that often give rise to misspellings.

Rule 3 refers to the doubling of consonants when a syllable with a short vowel adds an inflection. The root *rob* is distinguished from *robe* by the final <e>, but if the past tense simply involved <ed>, both would be *robed* and indistinguishable in either sound or meaning. Cut Spelling solves this problem by adding <d> only, so that *robd* and *robed* are distinguished by the extra letter. In the case of present participles, the long vowel is followed by <ing>, and the short one by <ng>, eg *robng* and *robing*. This is an example of a change that is hard to take at first, until one fully appreciates the extensive regularisation it permits. It is explained that <ng> is always pronounced <ing> unless some other vowel is present, as in *hang*, *hung*, or *gong*.

Conclusions

The Cut Spelling Working Group seems to have achieved its aim of producing the maximum reduction of letters with the minimum degree of disturbance. It is a great feat upon which Christopher Upward and his colleagues are to be warmly congratulated. Nevertheless, in the light of previous history they are prepared for resistance, and suggest that perhaps a partial implementation might be more acceptable. They are prepared for flexibility, although they warn of the need to select carefully and with understanding, because the close-knit relationship of the parts may mean that the cutting of a single strand leads to the unravelling of much more than intended.

It seems churlish to cavil at any aspect of a work of such high excellence, but I nevertheless have two suggestions to make, neither of which will have a knock-on unravelling effect.

Firstly, I demur at the broadening of the schwa elision to include the unstressed but clearly pronounced short <i> in *Latin*, *maxim*, *maximum*, *optimum*, etc. Some people may say *Latun, victum, pilgrum*, and so on, but many of the best speakers do not, and I believe the loss of the <i> from some 50 to 60 words can create an unneccssary hurdle for foreigners. There are also a few other non-schwa sounds in medial positions which ought, in my opinion, to be kept.

Secondly, I write wearing my graphological hat. Graphology is at last taking off as a science in Britain, as it did decades ago in Europe and the USA, and perhaps its most convincing credentials are the fact that it is taught in the psychology departments of many universities, including the Sorbonne, and that character evidence from handwriting is admissible in the law courts of Israel, Sweden, Switzerland, and some American states.

Fortunately Cut Spelling will affect the graphologists' raw material in one respect: capital letters. Capitals give information of a type that lower-case letters cannot, but they are already too sparse for the graphologists' liking, and Cut Spelling's suggestion of reducing them more would accentuate the handicap. *Please* think again. The existence of a capital letter for the personal pronoun <I> (ppl) is a bonus to English-speaking graphologists. It reveals a wide range of fundamental characteristics, from the emancipated adult to hang-ups related to one or both parents, and tendencies to be dangerous to oneself (eg suicidal) or to others (eg rapists). It is a mercy that the ppl has been reprieved, and *please* make that permanent.

To end on an upbeat note, Cut Spelling is a magnificent intellectual achievement and deserves to prosper.

[Journal of the Simplified Spelling Society, 16, 1994-1 p36 in the printed version]

8. Three influential books of the past decade
Brief reviews by Chris Jolly

Children's Reading Problems
Peter Bryant & Lynette Bradley

Oxford: Blackwell, 1985, ISBN 0 631 13683 5.
This is a very important book, and gives the feeling that real progress has been made in understanding the process of learning to read. Many research studies are drawn on, including the deservedly well-known work of the authors. It highlights the increasing importance given to 'phonological awareness': the awareness of the sounds in words. The book also has a practical side: the conclusions are usable in the classroom. It is perhaps an irony of today that there should be such a gulf between excellent material of this kind and the advice often used by teachers in the classroom.

Dyslexia
Margaret Snowling

Oxford: Blackwell, 1987, ISBN 0 631 14433 1.
In a well argued way, Margaret Snowling takes us through the improvements research has made to the understanding of dyslexia. She shows how severe reading retardation is now thought of as a verbal coding deficit. By that she means that dyslexic children have difficulty segmenting words into sounds, and remembering those sounds. However, there is nothing in this book to suggest that changing English spelling would help dyslexics. The issue appears to be more one of patient training with the sounds of words.

Phonological Skills and Learning to Read
Usha Goswami & Peter Bryant

Hove: Lawrence Erlbaum Associates, 1991, ISBN 0 86377 151 3.
This book sets out Usha Goswami's findings on the subject of onsets and rimes. She shows there is a natural break in words into these two parts, so that children can see the link between *top* and *hop* (rimes) at a younger age than the link between, say, *doll* and *dog* (onsets). However, the author appears reluctant to see the findings as a stage to phonological awareness at phoneme level. This is a well reasoned book, but for the researcher rather than the teacher.

9. Letter

January 21, 1994 ...

The Simplified Spelling Society quite correctly maintains that the English language contains many irregular spellings. They cause particular hardship to the very young.

The federal government is not in a position to mandate changes in school curriculum. Therefore, I urge you to bring the alternative you propose to the attention of the states. This can be done through the associations that deal with curriculum matters. ...

I hope this information is helpful to you, and I wish you the very best of success.

Sincerely, (signed) Nevzer Stacey, Director
Higher Education and Adult Learning Division
United States Department of Education